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ABSTRACT

Materials contained in this career guidance unit are designed to enable senior high school students to relate their abilities scores from the Developed Abilities Performance (DAP) instrument to actual vocational areas and Long Range [occupational] Goals (LRG) for later indepth study. The length of the unit is six 55-minute periods. Instructional sequence of the unit is outlined in terms of goal statements, performance objectives, instructor's information (including estimated lesson time, suggested grouping, content outline, new vocabulary, student prerequisites, instructor's preparation tasks, resources), and a detailed outline for developing the lesson. A rationale for career guidance and a media resources sheet are included. Student materials provided include the following: a guide containing activities for use with the unit and a booklet describing occupational groups and twelve groups of LRGs. Student information sheets and guides are provided in the form of mini-pacs for the following occupational areas: Engineering and architectural; mathematical and physical science; health service; biological science; business administration; teaching; social service; law, humanities, and social sciences; performing arts; technical; business sales; mechanical and repair; industrial trades; building trades; business clerical; and public and commercial service. (TA)

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SR 207.00 (74)

CAREER GUIDANCE

EXPLORING GOALS

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MESA PUBLIC SCHOOLS **DR. GEORGE N. SMITH—SUPERINTENDENT** **MESA, ARIZONA**

Developed by the Guidance staff of
Mesa Public Schools with cooperation
and assistance from selected district personnel

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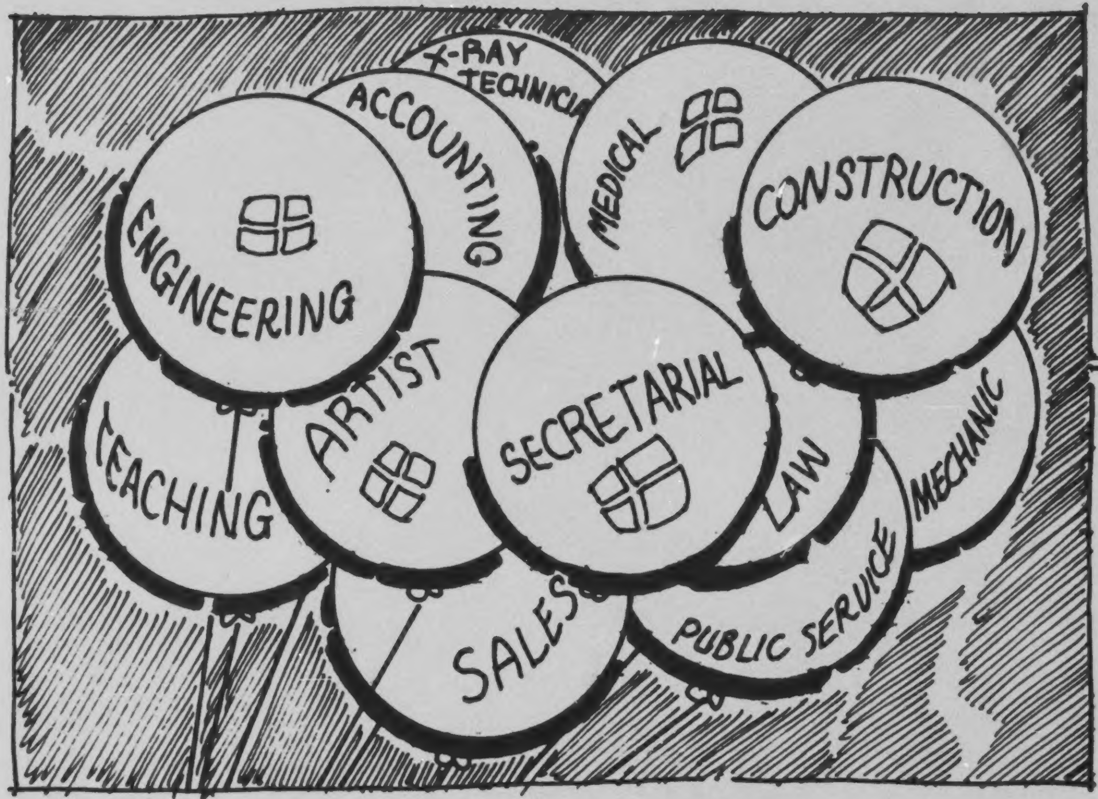
EXPLORING GOALS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I. UNIT RATIONALE

This unit will enable the student to relate his abilities scores from the DAP to actual vocational areas which he may later study in depth.

II. INTENDED USE OF UNIT

A. Grade Placement: 10 through 12

B. Duration of Unit: Six, 55 minute periods

C. Special Considerations: Materials from Unit SR 201 will need to be readily available.

III. INSTRUCTIONAL SEQUENCES

GOAL STATEMENT SR 207.00:

The student will explore in depth three Long-Range Goals (LRG's) in relation to decisions and choice points in order to select a primary and secondary long-range vocational goal.

A. Performance Objective SR 207.01: When directed, the student will compare his six scores on the Developed Abilities Performance instrument with other given scores, and identify three long-range goals which his abilities indicate he might want to explore in more depth.

1. Instructor's Information:
   - a. Estimated Lesson: 50 minutes
   - b. Suggested Grouping: Individual, small group
   - c. Content Outline:
     - (1) Read pages 1 through 9 in the Student Booklet
     - (2) Compare 6 scores on DAP listed in the student's Personal Assessment Summary with scores of other students who have since entered same occupations.
     - (3) Identify long-range goals you wish to explore in depth.

d. New Vocabulary: None

e. Student Prerequisites: SR 200, SR 201, SR 202

f. Instructor's Preparation Tasks:

The instructor should be thoroughly familiar with the twelve Long-Range Goal Clusters and the worker characteristics that are encompassed by each.

g. Resources:

(1) SR 207 - EXPLORING GOALS Student Booklet and Supplement

(2) SR 207 - Student Guide

(3) Developmental Abilities Performance test results from SR 201

2. Developing the Lesson:

a. Introduction:

In this unit the student will compare his six scores on the DAP instrument with other given scores. He will then identify three LRG's he would like to explore in depth.

b. Tasks and Activities:

ACTIVITY 1:

The student will become familiar with the twelve LRG's and the characteristics that workers within a cluster have in common.

ACTIVITY 2:

Compare his six scores on the DAP (three dimensional objects, abstract reasoning, vocabulary, reading comprehension, mechanical reasoning) with scores of other students who have since entered occupations in the 12 LRG groups, pp. 10-13 in Student Booklet.

c. Summary:

The student should now be familiar with the concept of clustering occupations according to the common characteristics of workers within the cluster. He should be able to indicate which three characteristics are used to establish the LRG's used in this unit.

d. Other Options: See SUPPLEMENT TO COUNSELORS' GUIDANCE UNITS

e. Enrichment: See SUPPLEMENT TO COUNSELORS' GUIDANCE UNITS

3. Evaluation:

Instructor's subjective judgement as to the degree of completion which each student has achieved.

B. Performance Objective SR 207.02: When directed, the student will identify the Long-Range Goals that include occupations whose work activities he is most likely to find interesting.

1. Instructor's Information:

   a. Estimated Lesson Time: 50 minutes

   b. Suggested Grouping: None

   c. Content Outline:

   Read the directions 7-13 in Student Guide and complete the activities as directed

   d. New Vocabulary: None

   e. Student Prerequisites: SR 200, SR 201, SR 202

   f. Instructor's Preparation Tasks:

   Supply the resources

   g. Resources:

      (1) SR 207, EXPLORING GOALS, Student Booklet and Supplement

      (2) SR 207, Student Guide

      (3) Developmental Abilities Performance Test results from SR 201

2. Developing the Lesson:

   a. Introduction:

   The student will identify the long-range goals that include occupations whose work activities he is most likely to find interesting. He then, will follow the plan set forth in directions 7 through 13 beginning on page 4 of the Student Guide SR 207.00.

   b. Tasks and Activities:

ACTIVITY 1:

Student: Read directions 7 through 13 beginning on page 4 of the Student Guide (SR 207) and complete as directed.

c. Summary:

Student should become aware of the application of abilities and interests to an occupational goal. He may have high interest but low ability or high ability but no interest.

d. Other Options: See SUPPLEMENT TO COUNSELORS' GUIDANCE UNITS

e. Enrichment: See SUPPLEMENT TO COUNSELORS' GUIDANCE UNITS

3. Evaluation:

Instructor's subjective judgement as to the degree of completion which each student has achieved.

C. Performance Objective SR 207.03: When directed, the student will use the Long-Range Goals which he has identified to pick the three Long-Range Goals he will explore in more depth.

1. Instructor's Information:

a. Estimated Lesson Time: 50 minutes

b. Suggested Grouping: None

c. Content Outline:

(1) Re-reading and completing "Long-Range Goals" lines d, e, f, - p. 7 of Student Guide

(2) Selecting 3 LRG's you wish to explore in depth

(3) Viewing films pertaining to specific LRG's

(4) Completing the Mini-Pacs

d. New Vocabulary: None

e. Student Prerequisites: SR 200, SR 201, SR 202

f. Instructor's Preparation Tasks:

Check to see that materials are available as shown in resources

g. Resources:

(1) EXPLORING GOALS Student Booklet and Supplement

(2) EXPLORING GOALS Student Guide

(3) 20 Mini-Pacs covering the 12 LRG's (207-I to 207-XII)

(4) 12 films covering the 12 LRG's

(5) Book: Occupations and Careers

(6) Filmstrip: "Preparing for Jobs in the 70's" - Part I and II

(7) Kit: Job Experience Kit (SRA)

(8) Tape Kit: Career Interview Tapes (50)

2. Developing the Lesson:

a. Introduction:

When directed, the student will select the three Long-Range Goals he will explore in depth.

b. Tasks and Activities:

ACTIVITY 1:

Student: Read d, e, f, on p. 7 in the Student Guide "Long Range Goals." List the 3 LRG's you wish to explore in depth. List those same LRG's and the Mini-Pacs which relate to each of the 3 LRG's.

Instructor: Assist student and see that he has the necessary materials.

ACTIVITY 2:

(1) The student will contact you to see the following films:

(a) "Business Administration LRG III"
(b) "Careers in Education LRG IV"
(c) "Careers: Technicians LRG VII"
(d) "Careers in Health Services LRG II"
(e) "Careers in Sales LRG VIII"
(f) "Careers: Mechanical LRG IX"
(g) "Careers in Construction LRG X"
(h) "Careers: Clerical LRG XI"
(i) "Careers in Services - General LRG XII"
(j) "Careers: Leisure Industries"

(2) Below are some possibilities for film schedules:

These films may be viewed once 8-12 students are ready. Approximately 3 films may be seen in 50 minutes. The students should be told that in order to receive credit for viewing the film they should write a report which shall include:

(a) Identification
(b) Summary
(c) Evaluation

The instructor may post a list of films to be viewed each day. The student will then sign up to see the film when he has the time.

The instructor may consider showing the films to the class as a whole.

(3) The report should include:

- (a) Identification:
  1. Title of film
  2. Publisher
- (b) Summary:
  A brief summary of the film's contents
- (c) Evaluation: Questions such as:
  1. How did this film help me?
  2. Did this film get across its point?
  3. Was it a good film for the class?
  4. How does it relate to me or the class?
  5. Did you enjoy the film? Why or why not?

  should be answered in the evaluation.

d. Other Options: See SUPPLEMENT TO COUNSELORS' GUIDANCE UNITS

e. Enrichment: See SUPPLEMENT TO COUNSELORS' GUIDANCE UNITS

- (1) Films
- (2) Mini-Pacs
- (3) SRA Job Experience Kits
- (4) Tapes
- (5) Filmstrips

3. Evaluation:

Individual tests are given after each occupational group booklet is finished.

D. Performance Objective SR 207.04: When directed, the student will orally report to an instructor that he has completed all of the Mini-Pacs related to the three Long-Range Goals he picked to explore in more depth.

1. Instructor's Information:

   a. Estimated Lesson Time: 50 minutes

   b. Suggested Grouping: None

   c. Content Outline:

      (1) Discuss comparison and decisions made as you worked through Student Guide SR 207

      (2) Review test and chart information

      (3) Discuss reasons for your final LRG choices in the three Exploration Units.

   d. New Vocabulary: None

   e. Student Prerequisites: SR 200, SR 202

   f. Instructor's Preparation Tasks:

      Prepare to examine the final product - LRG's chosen by student.

   g. Resources:

      (1) Student Booklet

      (2) Student Guide

      (3) End of unit test

2. Developing the Lesson:

   a. Introduction:

      When directed, the student will report to the instructor that he has satisfactorily completed the Mini-Pacs related to the three long-range goals he picked to explore in more depth.

b. Tasks and Activities:

ACTIVITY 1:

The student will be prepared to give a summary of what he has accomplished in this unit. All material covered--ability tests, charts, Mini-Pacs, end of unit test.

c. Summary:

The student should have established the three occupational groups into which his abilities and interests fit. He should also have accumulated a great deal of information about the occupational groups he has chosen. He has probably assigned a priority to the three choices in terms of his interests and abilities.

d. Other Options: See SUPPLEMENT TO COUNSELORS' GUIDANCE UNITS. Also, the student may be assigned an additional occupational group Mini-Pac to explore.

e. Enrichment: See SUPPLEMENT TO COUNSELORS' GUIDANCE UNITS. Also, the student may wish to explore additional group Mini-Pacs depending on his feelings of having successfully met the goals of the units.

3. Evaluation:

In-Depth Study of Vocational Long-Range Goals.

Instructor's Key

EXPLORING GOALS

SR 207

Upon completion of the learning activities assigned to this unit, the student will review the evaluation sheet with you having the title, "Instructor-Student In-Depth Study of Vocational Long-Range Goals." After reviewing the unit learning activities which he will bring along with the P.A.S. results, discuss with him his answers to the study sheet which he will deliver verbally.

As the answers given will be totally dependent upon the student, a wide range for answering should be allowed. Evaluation for unit comprehension should be based on the logic and demonstrated understanding the student gives through his verbal responses.

INSTRUCTOR-STUDENT

IN-DEPTH STUDY OF VOCATIONAL LONG-RANGE GOALS

Name ____

Questions to be asked:

1. Are most of your abilities as well developed as the abilities of other students who have since entered occupations in any of the 12 LRG's? If so, identify the LRG's for which this is the case.

2. Are at least half of your abilities as well developed as the abilities of other students who have since entered occupations in any of the 12 LRG's? If so, identify the LRG's for which this is the case.

3. Of the 12 LRG's, which did you identify as including occupations whose work activities you are likely to find interesting?

4. Of the following statements, which one is true of: (1) the first LRG you picked to explore; (2) the second LRG you picked to explore; and (3) the third LRG you picked to explore?

    a. It is an LRG: in which I have indicated high interest; and about which I could probably conclude that most of my abilities are as well developed as the abilities of other students who have since entered occupations in this LRG.

    b. It is an LRG: in which I have indicated high interest; and about which I could probably conclude that at least half of my abilities are as well developed as the abilities of other students who have since entered occupations in this LRG.

    c. It is an LRG: in which I have not previously indicated high interest but which I would now like to explore further; and about which I could probably conclude that half or more of my abilities are as well developed as the abilities of other studdnts who have since entered occupations in this LRG.

5. Which Mini-Pac did you satisfactorily complete?

____
Signature of instructor or counselor

Conference Sheet

EXPLORING GOALS

SR 207

Rationale: To show that the student has been able to understand and put to use the information contained in Performance Objectives SR 207.01 through SR 207.05.

Instructions: Upon completion of the activities as specified by the EXPLORING GOALS unit and your instructor, make an appointment to see either your instructor or counselor with whom you will discuss the sheet, "Instructor-Student In-Depth Study of Vocational Long-Range Goals." Take with you to the interview your Student Guide, P.A.S., and the completed answer sheets for the activities assigned throughout the Mini-Pacs.

Appointment with: ______________________________

Date: ______________________ Time: ____________

Approval: ______________________________
signature of instructor or counselor

IV. RATIONALE FOR CAREER GUIDANCE

Within Mesa'a Career Education Program, no single function is more critical than the guidance function of assisting individuals with their career planning. Guidance personnel (including teachers, counselors, etc.) should be equipped to help individuals to set personal goals (both short- and long-term) and to identify instructional objectives for them to achieve in the standard curriculum areas as well as less formal opportunities for them to explore outside school in order to attain their personal goals. The word "career" in the title of the Mesa Program is not interpreted in its narrow sense by being limited to the educational and occupational choices of youth. Rather, its scope includes individualized planning for comprehensive "life" goals. Mesa's counseling and guidance personnel must be able to provide individual planning assistance to help students set "life" or career goals in such areas as: (1) occupations, (2) education, (3) personal and social behavior, (4) learning how to learn, (5) social responsibility (i.e., citizenship) development, and (6) leisure-time activities.

To design and implement such an approach using this type of individual career planning orientation, the Mesa Career Education Program must meet at least the following guidance and counseling assumptions:

1. It must take the major responsibility in Mesa's total educational system for helping to develop and to protect the individuality of students.
2. It must help each student to become an effective personal problem solver (i.e., a planner, a decision-maker, a self-manager).
3. It must be based on student needs and ultimately should seek to

serve _all_ the career-related needs of _all_ students, not just the needs of a selected group of students.

4. It must integrate individual planning objectives and procedures into the school's instructional process in all subject areas.
5. It must include interventions in the instructional process through both a _developmental phase_ to maximize the potential each student has to grow in all the life areas, and a _prescriptive_ phase to help students resolve those problems which persist.
6. It must evaluate both the expected and unanticipated effects of various instructional and counseling strategies for helping individual students to meet their particular needs.

In order for Mesa's Career Education Program to meet these assumptions (i.e., to incorporate this type of an individualized guidance and counseling system) a series of activities is being systematically employed. These have included the identification of youth development needs (as seen through the eyes not only of youth but also parents, educators, and employers) and the translation of these expressed needs into objectives stipulating desired youth outcomes which are measurable. Instructional-counseling approaches such as the ones in this guidance unit are being developed to help students achieve these objectives. All such approaches will be closely evaluated and improved so that they assist, as much as possible, in the career planning and development of Mesa youth.

MEDIA RESOURCES SHEET

Unit # SR 207.00

Title EXPLORING GOALS

Developers

P.O. #	QUANTITY	TITLE	TYPE	SOURCE	COST
SR 207.03	2/school	Occupations and Careers	Feingold and Swerdloff book	McGraw-Hill	
SR 207.03	2/school	"Preparing for Jobs in the 70's" Part I	Filmstrip	Mesa High School Guidance Office	
SR 207.03	2/school	"Preparing for Jobs in the 70's" Part II	Filmstrip	Mesa High School Guidance Office	
SR 207.03	2 sets/ school	Job Experience Kit	Booklet	SRA #5-4000	
SR 207.03	1/school	Career Interview Tapes	Kit of 50	Imperial International Learning Co.	
SR 207.03	2/school	Careers for the 70's	paperback	Dow Jones Books	$1.85

MEDIA RESOURCES SHEET

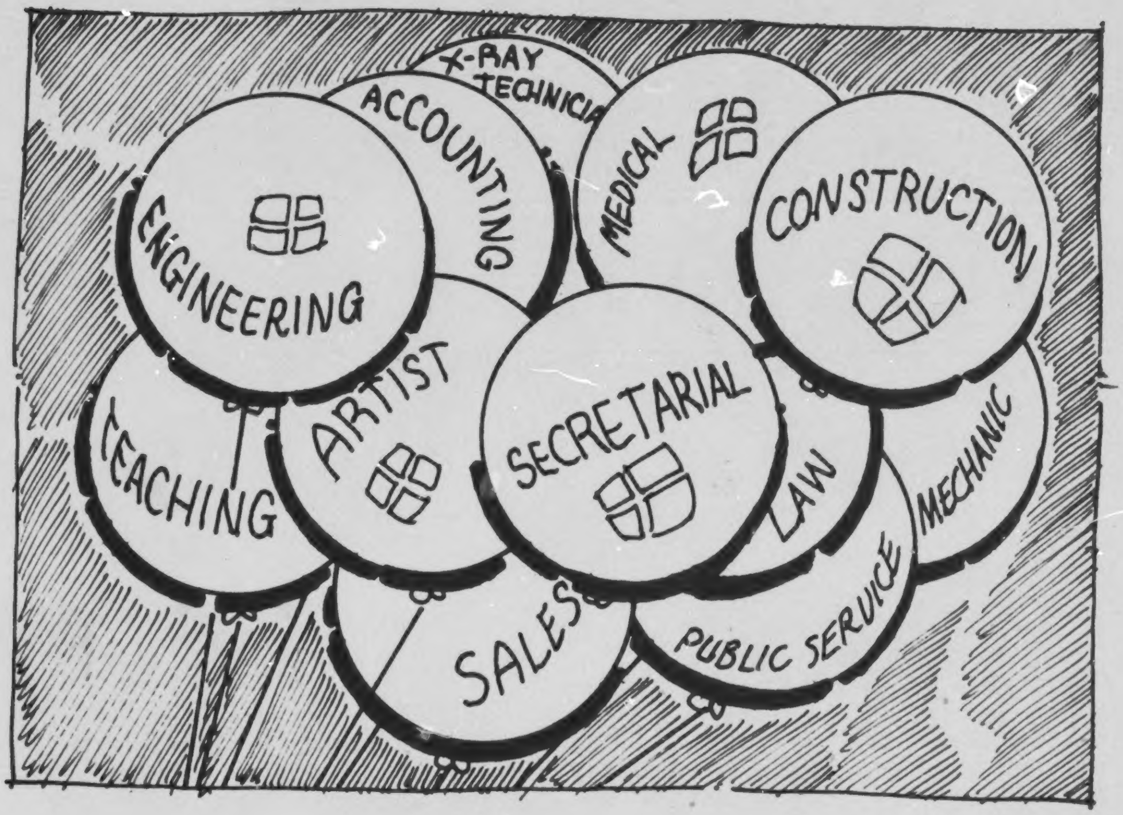
Unit # SR 207.00

Title EXPLORING GOALS

Developers

P.O. #	QUANTITY	TITLE	TYPE	SOURCE	COST
SR 207.03	1/school	"Business Administration" (LRG III)	film	Mesa High School Guidance Office	provided by AIR
"	"	"Careers in Education" (LRG IV)	"	"	"
"	"	"Careers: Technicians" (LRG VII)	"	"	"
"	"	"Careers in Health Services" (LRG II)	"	"	"
"	"	"Careers in Sales" (LRG VIII)	"	"	"
"	"	"Careers: Mechanical" (LRG IX)	"	"	"
"	"	"Careers in Construction" (LRG X)	"	"	"
"	"	"Careers: Clerical" (LRG XI)	"	"	"
"	"	"Careers in Services-General" (LRG XII)	"	"	"
"	"	"Careers: Leisure Industries"	"	"	"

EXPLORING GOALS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STUDENT GUIDE SR 207.00 (74)

EXPLORING GOALS

THE POINT:

The purpose of this unit is to help you to:

Explore in depth three Long-Range Goals (LRG's) in relation to decisions and choice points in order to select a primary and secondary long-range vocational goal.

THE GOAL:

By the end of this unit, you should be able to:

1. Compare your scores on the six (DAP) abilities with the scores of other students who have since entered occupations in the twelve Long-Range Goal Groups.

2. Based on these comparisons identify the LRG's which your abilities indicate you might want to explore in more depth.

3. Identify the LRG's that include occupations whose work activities you are likely to find interesting.

4. Based on the LRG's you have identified, pick the three LRG's you will explore in more depth.

5. Orally report to an instructor that you have satisfactorily completed the Exploration Units related to the three LRG's you picked to explore in more depth.

THE EVALUATION:

In the conference you will have with your instructor or counselor at the end of this unit, you should be able to answer questions such as the following:

1. Are most of your abilities as well developed as the abilities of other students who have since entered occupations in any of the 12 LRG's? If so, identify the LRG's for which this is the case.

STUDENT DIRECTIONS:

_____1. Read "Occupational Groups" pp. 1-3 in the Student Booklet, EXPLORING GOALS.

_____2. Below is a list of occupations for you to divide into occupational groups by listing them in the space provided. Place the ones which require more manual abilities in one column and the ones which require more abstract reasoning ability in the other column.

Carpenter
Chemist
Civil Engineer
Hair Stylist
Lawyer

Mathematician
Mechanic
Physicist
Plumber
Typist

Occupations in Group 1	Occupations in Group 2

_____3. Read "Long Range Occupational Goals" pp. 4-6 in the Student Booklet, EXPLORING GOALS.

_____4. The characteristics in common that occupations within an LRG may have are the following: (1) nature of activities done by workers on the job, (2) amount and type of education required, and (3) developed abilities of the workers. Below are five groups of four occupations. Three of the occupations in each group are alike in several of these ways and one is different from the others. Circle the title of the occupation that is different.

1. physicist
   engineer
   chemist
   accountant

2. high school English teacher
   computer programmer
   elementary school teacher
   social worker

3. lawyer
   secretary
   typist
   bookkeeper

4. doctor
   pharmacist
   laboratory technician
   dentist

5. carpenter
   architect
   painter
   plumber

_____5. Read pages 7-9 in the Student Booklet, EXPLORING GOALS. In steps 6-13 of this Student Guide, you will be comparing your scores on the six DAP abilities with the scores of other students who have since entered (or planned to enter) occupations in the twelve LRG's.

_____6. Find your Personal Assessment Summary (PAS) which you completed in Unit 201, WHO AM I?. Locate the box in the ABILITIES section of your PAS labeled "Results of the Developed Abilities Performance Test."

For each ability write the quartile in which your percentile score fell in the spaces below.

ABILITIES	MY QUARTILE SCORES (High, High-Average, Low-Average, Low)
a. Three Dimensional Objects	______________________
b. Abstract Reasoning	______________________
c. Arithmetic Reasoning	______________________
d. Vocabulary	______________________
e. Reading Comprehension	______________________
f. Mechanical Reasoning	______________________

_____7. Now, find the charts for your sex in your Student Booklet (pp. 10 and 11 for males, or pp. 12 and 13 for females). They give the quartile standings on the same six abilities of students who have since entered (or planned to enter) various occupations. The number of the LRG that each occupation represents is given after the occupational title. The quartile standings of students is shown by the section of the chart in which the occupational title is written.

To compare your scores with the chart, follow these steps for each of the six abilities. Before you begin these steps, read "Randy's Comparison" on pp.14-16 of the Student Booklet, EXPLORING GOALS. It will help you to learn how to follow these directions.

a. For one ability such as "Three Dimensional Objects" find the quartile on the chart which is the same as the quartile in which your score fell.

b. Look at the occupations (and the LRG's they represent) that are listed in this quartile.

c. Also look at the occupations (and the LRG's they represent) that are listed in this quartile or quartiles, if any are below this quartile.

d. Find the title of the ability you are working with in the lists of LRG numbers on p. 5 of this Student Guide.

e. Circle the LRG numbers you found in steps b. and c. on the appropriate list of LRG's. Circle an LRG number only once for each ability.

Three Dimensional Objects	Abstract Reasoning	Arithmetic Reasoning
I	I	I
II	II	II
III	III	III
IV	IV	IV
V	V	V
VI	VI	VI
VII	VII	VII
VIII	VIII	VIII
IX	IX	IX
X	X	X
XI	XI	XI
XII	XII	XII

Vocabulary	Reading Comprehension	Mechanical Reasoning
I	I	I
II	II	II
III	III	III
IV	IV	IV
V	V	V
VI	VI	VI
VII	VII	VII
VIII	VIII	VIII
IX	IX	IX
X	X	X
XI	XI	XI
XII	XII	XII

_____8. Count the number of times you circled each of the twelve LRG numbers and record that number below.

LRG Numbers	Total Number of Times I Circled Each LRG
I	________
II	________
III	________
IV	________
V	________
VI	________
VII	________
VIII	________
IX	________
X	________
XI	________
XII	________

_____9. On the line below lettered "a", write the LRG numbers which you circled either five or six times.

a.____

> You could probably conclude that most of your abilities are as well developed as the abilities of other students who have since entered or planned to enter occupations included in these LRG's.

_____10. On the line below lettered "b", write the LRG numbers which you circled either three or four times.

b.____

> You could probably conclude that about half of your abilities are as well developed as the abilities of other students who have entered or planned to enter occupations included in these LRG's.

The LRG's you identified on lines a. and b. are ones which your abilities indicate you might want to explore in more depth. If you found no LRG numbers which you circled at least three times, you should talk with your instructor now and get further directions from him.

_____11. Now it is time to identify the LRG's that include occupations whose work activities you are likely to find interesting. Turn to the box in the INTERESTS section of your PAS headed "Areas of Interest I Want to Consider When I Select My Educational and Vocational Goals."

On the line below lettered "c", write the LRG numbers of the areas of interest you wrote in the box.

c. ____

In steps 12, 13, and 14, you will look at the LRG's in light of how occupations included in them compare to both your abilities and your interests.

_____12. Are there any LRG numbers that you wrote on both lines a. and c.? If so, write them on line d. below.

d. ____

These are LRG's in which: (1) you have indicated a high interest and (2) most of your abilities are as well developed as the abilities of other students who have since entered occupations included in these LRG's.

_____13. Are there any LRG numbers that you wrote on both lines b. and c.? If so, write them on line e. below.

e. ____

These are LRG's in which: (1) you have indicated a high interest and (2) about half of your abilities are as well developed as the abilities of other students who have since entered occupations included in these LRG's.

_____14. Are there any other LRG's whose numbers you wrote on lines a. and b. which you would now be interested in exploring more deeply? If so, write their numbers on line f. below.

f. ____

_____15. Read the pages in the Student Resource Supplement, EXPLORING GOALS, that discuss the LRG's you wrote on lines d., e., and f.

_____16. In the spaces below, write the numbers of the three LRG's taken from lines d., e., and f. which you want to explore in more depth in order to consider them as possible long-range vocational goals.

The LRG's I Might Want to Explore in Depth

LRG_______________________________

LRG_______________________________

LRG_______________________________

**** 17. At this point contact the instructor to view films. Prior to viewing each film, read the pages in the Student Resource Supplement that correspond to the LRG presented in the film.

_____18. On page 10 of this Student Guide, you will find a list of 20 Mini-Pacs. Look at this list now. Notice that the Mini-Pacs are keyed to the 12 LRG's--sometimes one unit to an LRG, and sometimes two units to an LRG. Circle the Mini-Pacs which are keyed to the LRG's you picked to explore. Then in the first column below, fill in the numbers of the LRG's you picked to explore. Across from each LRG number, write in the titles of the related Mini-Pacs.

The LRG's I Picked to Explore	Related Mini-Pacs
LRG________________	________________________
	________________________
LRG________________	________________________
	________________________
LRG________________	________________________
	________________________

_____19. Refer now to the Student Guide for the Mini-Pacs you have chosen to explore. You do not need to refer to instruction #20 in this Student Guide until you have completed your selected Mini-Pacs.

_____20. At the end of this unit, you are to have a conference with your instructor or counselor. He will ask you some questions about the comparisons and decisions you have made as you worked through this Student Guide. You must show him that you carefully thought about the information in your PAS and in the charts in the Student Booklet, EXPLORING GOALS, when you picked the LRG's you wanted to explore in more depth.

☐ 21. When you are ready, make an appointment with your instructor or counselor for this conference. Take along your PAS, this Student Guide, and the Student Guides and end of unit test answer sheets from your completed Mini-Pacs. You will need them to answer the questions your instructor or counselor will ask.

LRG Numbers	Mini-Pacs
I	1. "Engineering and Architectural Occupations" 2. "Mathematical and Physcial Science Occupations"
II	1. "Health Service Occupations" 2. "Biological Science Occupations" 91610 - "Careers: Health Services"
III	1. "Business Administration Occupations" 2. "Business Administration Occupations"
IV	1. "Teaching Occupations" 2. "Social Service Occupations" 91550 - "Careers: Education"
V	1. "Social Science Occupations"
VI	1. "Performing Arts Occupations"
VII	1. "Technical Occupations" 2. "Technical Occupations" 91530 - "Careers: Technical"
VIII	1. "Business Sales Occupations" 91510 - "Careers: Sales"
IX	1. "Mechanic and Repairman Occupations" 2. "Industrial Trade Occupations" 91600 - "Careers: Mechanical"
X	1. "Building Trades Occupations" 91580 - "Careers: Construction"
XI	1. "Business Clerical Occupations" 2. "Business Clerical Occupations" 91620 - "Careers: Clerical"
XII	1. "Public and Commercial Service Occupations" 2. "Public and Commercial Service Occupations" 91570 - "Careers: Government Services"

Related Films

91590 - "Careers: Leisure Industries"
91540 - "Careers: Communications"
91560 - "Careers: Ari. Business"
91520 - "Careers: General Business"

SR 207.00 (74)

CAREER
GUIDANCE

EXPLORING GOALS

STUDENT BOOKLET

MESA PUBLIC SCHOOLS DR. GEORGE N. SMITH—SUPERINTENDENT MESA, ARIZONA

Developed by the Guidance staff of

Mesa Public Schools with cooperation

and assistance from selected district personnel

Illustrations by Steve Laney and
Sally Valentine

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In cooperation with the Youth Development Research
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Palo Alto, California

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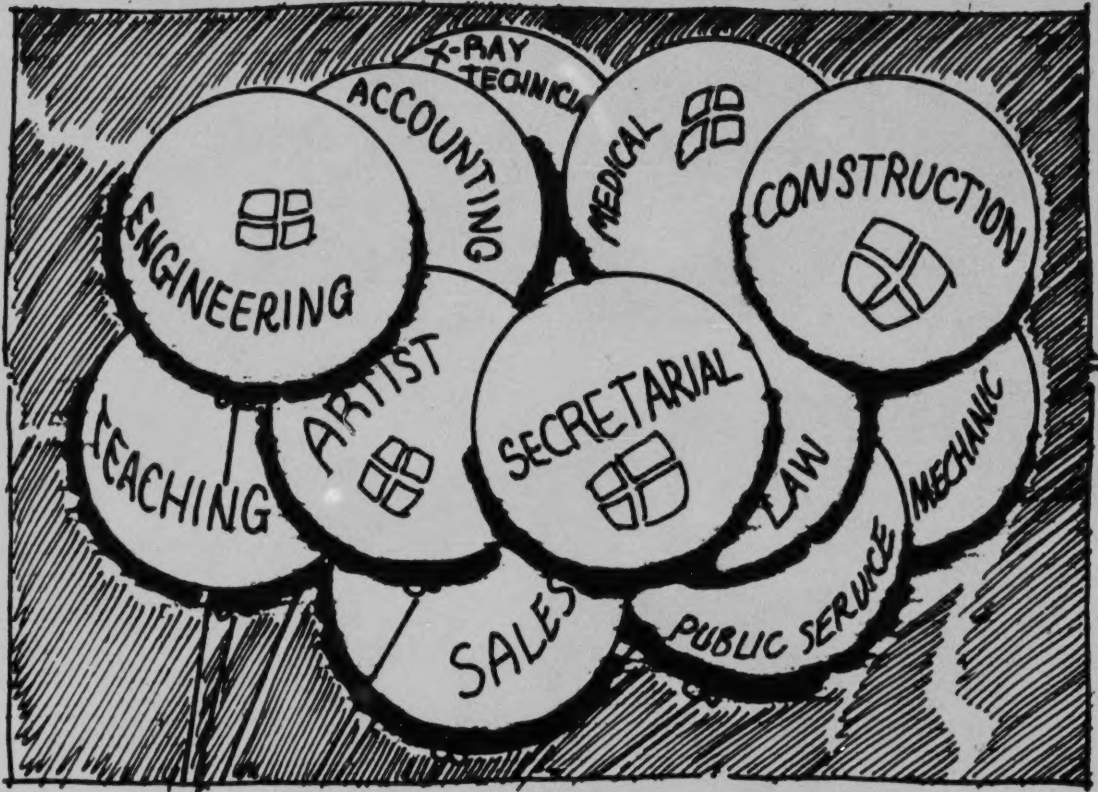
EXPLORING GOALS


X-RAY TECHNICIA
ACCOUNTING
MEDICAL
CONSTRUCTION
ENGINEERING
ARTIST
SECRETARIAL
TEACHING
LAW
MECHANIC
PUBLIC SERVICE
SALES

OCCUPATIONAL GROUPS

Many, many different kinds of jobs are included in the world of work. Just the paper in the booklet you are now reading represents the work of a lot of people in many different occupations. Let's consider a few of them. There was the forester who grew the tree from which the paper was made; the lumberjack who cut the tree down; the truck driver who took the tree to the paper processing mill; the workers at the mill who first transformed the tree into raw pulp and, then, into rolls of paper. The paper was then cut to specifications and sold by a salesman to a wholesaler who, in turn, sold the paper to the printer of this booklet.

The history of almost any product or service you can name is equally complex in terms of the jobs it requires. The Dictionary of Occupational Titles, published by the United States Department of Labor, lists more than 20,000 separate occupations. Just learning what workers in each of these occupations do on the job (not to mention learning what preparation is required for each job) would be overwhelming.

When a person in thinking about his future career goals, it is impossible, of course, for him to keep all these thousands of jobs in mind at once. It is possible, though, for him to consider groups of jobs that have something in common. Organizing the world of work into groups of occupations that have common characteristics makes it possible for you to think about a few groups of occupations instead of 20,000 separate jobs, and for you to learn a lot about many occupations from a little information. For example, there are many kinds of engineering occupations that may be placed together in a group. There are civil engineers, hydraulic engineers, electrical engineers, chemical engineers and mechanical engineers, to name a few. If you learn the educational requirements for becoming a electrical engineer, then you would also have some information on what it takes to become any of the other kinds of engineers.

When you learn something about one of the occupations that is representative of an occupational group, then you know something about all the other occupations in that group. In other words, sorting separate occupations into gruops of occupations that have things in common allows you to apply the information you learn about one occupation in a group to the other occupations that are included in that group.

LONG-RANGE OCCUPATIONAL GOALS

While there are several different systems in use for sorting occupations into occupation groups, one very valuable system is the 12 groups of Long-Range Occupational Goals (LRG's). The following is a list of the 12 LRG titles:

LRG I. Engineering, Physical Science, Mathematics and Architecture

LRG II. Medical and Biological Sciences

LRG III. Business Adminstration

LRG IV. General Teaching and Social Service

LRG V. Humanities, Law, and Social and Behavioral Sciences

LRG VI. Fine Arts, Performing Arts

LRG VII. Technical Jobs

LRG VIII. Business, Sales

LRG IX. Mechanics, Industrial Trades

LRG X. Construction Trades

LRG XI. Business, Secretarial-Clerical

LRG XII. General, Commerical Service, Public Service

The jobs which we clustered together as representative of a Long-Range Goal group were put together for one or more of three reasons. First, jobs in a Long-Range Goal group are alike in the nature of the work done on these jobs. Thus occupations relating to physical science are in one group. Occupations relating to clerical work are in another group. Occupations relating to the construction trades are in yet another group.

Second, all the occupations within a given Long-Range Goal group require similar amounts and types of education or training. For example, occupations in the physical sciences all require at least four years of college. Clerical occupations all require training in business skills.

Third, all the occupations within a Long-Range Goal group seem to have workers who, in high school, had similar "developed abilities." Developed abilities are abilities which are developed as people grow and learn. They are not something a person is born with. People have all of these developed abilities to some extent, but in each person some abilities are more developed than others. The experiences a person has determine which of his abilities are most developed. That is, if you have had a lot of experience in mathematics and your best friend hasn't, then your mathematical ability would probably be more developed than your friend's. Developed abilities are not fixed. If a person practices and gains more experience in certain areas, then his abilities will develop more in those areas.

Usually, all the occupations within one Long-Range Goal group are similar in all of these ways: nature of the job, amount of education and training required, and developed abilities needed by workers. However, some occupations within one group may only be similar in two of these ways or even just one way. Therefore, it would be a mistake to think that jobs in one LRG are exactly alike. Just as brothers and sisters in a family share the family name but are different from one another in many ways, jobs sorted into one LRG may differ in various ways, too.

Furthermore, it would be a mistake to think that all the jobs in one LRG are completely different from the jobs of another LRG. There are certain jobs that might seem to belong in more then one group. For example, the occupation of high school mathematics teacher is found in the group of Physical Science and Mathematics occupations rather than in the group of Teaching occupations. Although the mathematics teachers' work tasks are like those of other teachers, their educational background must be more like that of workers in Physical Science and Mathematics. Therefore, they were classified in the Physical Science and Mathematics group rather than the Teaching group. You may notice other examples of overlap between groups when you study the Long-Range Goal groups in more detail.

Remember the story about John Taylor comtemplating his future? You read it some time ago when you were working on the ORIENTATION unit.

"A Day in the Life of John"

John Taylor sat alone in a back booth in the coffee shop idly stirring a coke. It was a week before graduation and he had taken a break from his studying to get out of the house.

"Well, now what happens?" he said to no one in particular. "What am I going to do from now on?" He'd thought about this problem several times before, but it had never seemed as serious or urgent as it did now. He had considered the possibilities: college, the military, finding a job, any job, working in construction with his dad until something else turned up . . . he even considered marriage, but Jane didn't want to, at least not now.

The choice of a career frightened him. He had heard many of his friends and their parents complain about their jobs. "When I was a kid, they used to ask 'What do you want to be when you grow up?' The question is what can I be, not want to be. And how do I know what I can be if I don't know what I can do or the jobs that are out there anyway?" He stirred his coke some more. The more he thought the more confused he became. Finally, he pushed it away. "Ah, the heck with it. Something will turn up this summer, why worry about it now?"

It sounds like John asked some of the right questions such as "What can I be," but he didn't get any of the answers to his questions. All those people in all those different jobs; each job requiring different abilities and schooling. It was too confusing for him.

This vocational guidance course offers a way of helping you to deal with this confusion. When you look at the world of work you see something quite different than what John saw. Instead of asking, "What can I be" and having no answer, in this unit you will compare some of your personal characteristics with the characteristics of other students like you who later entered various occupations in the 12 LRG's. After you have made these comparisons, you will be better prepared to choose several LRG's to explore in more depth in order to consider them as possible long range vocational goals for you. Later, in the final unit of this course, you will actually choose your vocational long-range goals. These should be goals that both challenge you to develop your talents to their fullest and at the same time are not clearly beyond your reach.

While you were working on the unit titled WHO AM I?, you filled out a Personal Assessment Summary (PAS). On your PAS, you recorded your percentile scores on the six Developed Abilities Performance sub-tests by placing an X in the appropriate quartile. The charts that follow, shown on pages 10-13 of this booklet present the average quartile scores made by twelfth grade students who later entered various occupations in the 12 LRG's.

Two of the charts are for males and two are for females. Across the top of each chart, one to a column, are listed the same abilities for which you were tested. In the columns are selected occupations which represent all the occupations in the various LRG's. The LRG number (I-XII) for each occupation is given. These represent LRG occupations and are placed in each column according to the quartile standing of twelfth graders who later entered the occupations. The charts are divided from top to bottom into four quartiles. There is usually more than one occupation listed for each LRG. Sometimes the occupations from a single LRG are not shown in the same quartile.

Now, look over the two charts on the following pages that are for students of your sex. These charts are provided so that you can use your own quartile standing on the six DAP tests to help you compare your abilities with the abilities of twelfth graders who later went into occupations representing each of the LRG's. If you have any trouble understanding the charts, ask your instructor or another student for help. You can refer back to the descriptions of the LRG's in the booklet Your Long-Range Goal in order to review all occupations in a particular LRG, if you want.

QUARTILE STANDING OF MALES IN 35 DIFFERENT OCCUPATIONS ON THREE DIMENSIONAL OBJECTS, ABSTRACT REASONING, AND ARITHMETIC REASONING

	Three Dimensional Objects	Abstract Reasoning	Arithmetic Reasoning
HIGH	Physicist I Electrical Engineer I	Electrical Engineer I	Physician II Physicist I Chemist I Electrical Engineer I
75th Percentile			
HIGH-AVERAGE	Theater Arts VI Chemist I Biologist II Physician II University Teacher V Electronic Tech. VII High School Math Teacher I Draftsman VII Clergyman IV Pharmacist II Business Management III Carpenter X Lawyer V Proprietor VIII Programmer VII	Physicist I Chemist I Biologist II Physician II University Teacher V High School Match Teacher I Lawyer V Theater Arts VI Clergyman IV Pharmacist II Business Management III Programmer VII CPA III Marketing III Social Worker IV High School Social Studies Teacher V Electronic Tech. VII High School Teacher IV	University Teacher V Lawyer V High School Math Teacher I Biologist II Pharmacist II Clergyman IV Theater Arts VI CPA III Programmer VII Business Management III High School Teacher IV Marketing III Electronic Tech. VII
Average Developed Abilities Performance of 12th Grade Males			
LOW-AVERAGE	Music Teacher VI Machinist IX CPA III Marketing III High School Teacher IV Electrician IX Social Worker IV Supervisor VIII Salesman VIII Computer Operator VII Bricklayer X Mechanic IX Plumber X Farmer XII Policeman XII High School Social Studies Teacher V Printer IX Driver XII	Draftsman VIII Computer Operator VII Proprietor VIII Music Teacher VI Salesman VIII Carpenter X Supervisor VIII Electrician IX Printer IX Machinist IX Policeman XII Farmer XII Plumber X Mechanic IX Bricklayer X	High School Social Studies Teacher V Music Teacher VI Salesman VIII Social Worker IV Computer Operator VII Proprietor VIII Draftsman VIII Farmer XII Machinist IX Supervisor VIII Printer IX Electrician IX Policeman XII Bricklayer X Carpenter X Plumber X Mechanic IX
25th Percentile			
LOW		Driver XII	Driver XII

QUARTILE STANDING OF MALES IN 35 DIFFERENT OCCUPATIONS ON VOCABULARY, READING COMPREHENSION, AND MECHANICAL REASONING

	Vocabulary	Reading Comprehension	Mechanical Reasoning
HIGH	Physician II Biologist II Chemist I Physicist I University Teacher V	Physician II Biologist II University Teacher V Chemist I Physicist I	Electrical Engineer I Physicist I
75th Percentile			
HIGH-AVERAGE	Electrical Engineer I Lawyer V Theater Arts VI Clergyman IV Music Teacher VI Pharmacist II High School Social Studies Teacher V Social Worker IV Programmer VII Business Management III High School Math Teacher I High School Teacher IV CPA III Electronic Tech. VII	Theater Arts VI Lawyer V Electrical Engineer I Clergyman IV Pharmacist II High School Social Studies Teacher V High School Math Teacher I Social Worker IV High School Teacher IV Music Teacher VI Programmer VII CPA III Business Management III Marketing III Electronic Tech. VII	Theater Arts VI Chemist I Biologist II Physician II Electronic Tech. VII University Teacher V High School Math Teacher I Business Management III Pharmacist II Programmer VII Lawyer V Clergyman IV Proprietor VIII
Average Developed Abilities Performance of 12th Grade Males			
LOW-AVERAGE	Marketing III Salesman VIII Supervisor VIII Policeman XII Proprietor VIII Computer Operator VII Draftsman VII Machinist IX Printer IX Electrician IX Mechanic IX Bricklayer III Plumber X Farmer XII	Salesman VIII Policeman XII Proprietor VIII Computer Operator VII Supervisor VIII Draftsman VII Electrician IX Printer IX Machinist IX	CPA III Draftsman VII Marketing III Machinist IX Social Worker IV Music Teacher VI Farmer XII Electrician IX High School Teacher IV Carpenter X Salesman VIII Supervisor VIII Mechanic IX Computer Operator VII Bricklayer X Policeman XII Printer IX Driver XII High School Social Studies Teacher V Plumber X
25th Percentile			
LOW	Carpenter X Driver XII	Farmer XII Plumber X Bricklayer X Mechanic IX Carpenter X Driver XII	

QUARTILE STANDING OF FEMALES IN 24 DIFFERENT OCCUPATIONS ON THREE DIMENSIONAL OBJECTS, ABSTRACT REASONING, AND ARITHMETIC REASONING

	Three Dimensional Objects	Abstract Reasoning	Arithmetic Reasoning
	High School Math Teacher I Chemist I Art Teacher VI	High School Math Teacher I	Chemist I High School Math Teacher I Personnel Worker III College Teacher V Librarian V
75th Percentile			
	Personnel Worker III Music Teacher VI Programmer VII College Teacher V Librarian V Medical Technologist VII Laboratory Tech. VII Nurse II Advertising Worker III High School Teacher IV Elementary Teacher IV Social Worker IV Accountant III High School Social Studies Teacher V	Music Teacher VI Librarian V Chemist I Programmer VII College Teacher V Laboratory Tech. VII Art Teacher VI Medical Technologist VII High School Teacher IV Nurse II Personnel Worker III Elementary Teacher IV Social Worker IV Advertising Worker III High School Social Studies Teacher V Accountant III	Programmer VII Medical Technologist VII High School Teacher IV Music Teacher VI Laboratory Tech. VII Social Worker IV Advertising Worker III Nurse II High School Social Studies Teacher V Art Teacher VI Elementary Teacher IV Accountant III
Average Developed Abilities Performance of 12th Grade Females			
	Clothing Worker XII Bookkeeper XI Secretary XI Hairdresser XII Keypunch Operator XI Practical Nurse XII Salesclerk VIII	Secretary XI Bookkeeper XI Keypunch Operator XI Hairdresser XII Clothing Worker XII Practical Nurse XII	Bookkeeper XI Secretary XI Practical Nurse XII Hairdresser XII Keypunch Operator XI Clothing Worker XII
25th Percentile			
		Salesclerk VIII	Salesclerk VIII

QUARTILE STANDING OF FEMALES IN 24 DIFFERENT OCCUPATIONS ON VOCABULARY, READING COMPREHENSION, AND MECHANICAL REASONING

	Vocabulary	Reading Comprehension	Mechanical Reasoning
HIGH	Chemist I Personnel Work III College Teacher V High School Math Teacher I Librarian V	Chemist I Librarian V College Teacher V High School Math Teacher I High School Social Studies Teacher V	Chemist I High School Math Teacher I
75th Percentile ←			
HIGH-AVERAGE	High School Teacher IV Art Teacher VI High School Social Studies Teacher V Laboratory Tech. VII Programmer VII Medical Technologist VII Music Teacher VI Nurse II Advertising Worker III Social Worker IV Elementary Teacher IV	Medical Technologist VII High School Teacher IV Personnel Worker III Music Teacher VI Art Teacher VI Nurse II Social Worker IV Laboratory Tech. VII Elementary Teacher IV Programmer VII Advertising Worker III	Art Teacher VI Programmer VII Medical Technologist VII College Teacher V Laboratory Tech. VII Music Teacher VI Personnel Worker III Librarian V Nurse II Advertising Worker III High School Teacher IV Elementary Teacher IV High School Social Studies Teacher V Social Worker IV
Average Developed Abilities Performance ← of 12th Grade Females			
LOW-AVERAGE	Secretary XI Accountant III Bookkeeper XI Practical Nurse XII Keypunch Operator XI	Secretary XI Accountant III Bookkeeper XI Practical Nurse XII Keypunch Operator XI	Accountant III Secretary XI Keypunch Operator XI Hairdresser XII Bookkeeper XI Clothing Worker XII Practical Nurse XII Salesclerk VIII
25th Percentile ←			
LOW	Clothing Worker XII Hairdresser XII Salesclerk VIII	Hairdresser XII Clothing Worker XII Salesclerk VIII	

Randy's Comparison

From his Personal Assessment Summary (PAS), Randy Turnbone found that his scores on the Developed Abilities Performance Test fell in these quartiles:

a. Three Dimensional Objects low average

b. Abstract Reasoning high

c. Arithmetic Reasoning low

d. Vocabulary high average

e. Reading Comprehension low

f. Mechanical Reasoning low average

Randy looked at the charts for males on pp. 10-11 of this booklet. He started with the developed ability "Three Dimensional Objects," on which he scored in the low average quartile. He followed the five steps listed in Activity 6 of the Student Guide:

a. First, Randy located the "Three Dimensional Objects" column on p. 10 of this booklet. Within the column, he found the quartile which was the same as the quartile in which his score on "Three Dimensional Objects" fell (the "Low-Average" quartile).

b. Then, he looked at the occupations in this section. He found eighteen occupations listed (Music Teacher VI through Driver XII).

c. Next, Randy looked for occupations listed in the "Low" quartile of the "Three Dimensional Objects" section of the chart. This is the quartile below the one in which score fell. There were no occupations listed there.

d. Then, Randy turned to the lists of LRG numbers on p. 10 of his Student Guide. He found the list headed "Three Dimensional Objects."

e. Finally, Randy circled the LRG numbers that he found after the occupations in the "Low-Average" quartiles. Some of the LRG numbers were repeated but he only circled them once on the lists in his Student Guide. If any occupations had been listed in the "Low" quartile (the quartile below the one which was the same as the quartile in which his score fell), he would have circled their LRG numbers also.

After Randy finished the ability, "Three Dimensional Objects," he went on to the next ability, "Abstract Reasoning," and did the same five things (a-e). He kept going and followed the same five steps for all the abilities. This is what the lists of LRG numbers in Randy's Student Guide looked like when he finished:

Three Dimensional Objects	Abstract Reasoning	Arithmetic Reasoning
I	[✓ I]	I
II	[✓ II]	II
[✓ III]	[✓ III]	III
[✓ IV]	[✓ IV]	IV
[✓ V]	[✓ V]	V
[✓ VI]	[✓ VI]	VI
[✓ VII]	[✓ VII]	VII
[✓ VIII]	[✓ VIII]	VIII
[✓ IX]	[✓ IX]	IX
[✓ X]	[✓ X]	X
XI	XI	XI
[✓ XII]	[✓ XII]	[✓ XII]

Vocabulary	Reading Comprehension	Mechanical Reasoning
[✓ I]	I	I
[✓ II]	II	II
[✓ III]	III	[✓ III]
[✓ IV]	IV	[✓ IV]
[✓ V]	V	[✓ V]
[✓ VI]	VI	[✓ VI]
[✓ VII]	VII	[✓ VII]
[✓ VIII]	VIII	[✓ VIII]
[✓ IX]	[✓ IX]	[✓ IX]
X	[✓ X]	[✓ X]
XI	XI	XI
[✓ XII]	[✓ XII]	[✓ XII]

EXPLORING GOALS
MINI ~ PAC

STUDENT INFORMATION SHEET Sr.207(74)
I-1

ENGINEERING AND ARCHITECTURAL OCCUPATIONS

Part 1

The section you just read in Occupations and Careers was written before the Federal Government's decision to cut back sharply in defense and space spending. At present, employment opportunities for engineers are not expected to be as good in the future as the section in Occupations and Careers suggested.

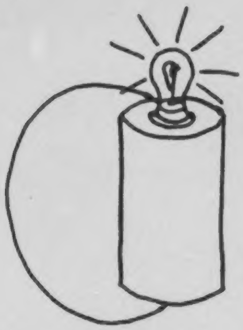
Recently, well trained engineering specialists with years of experience have lost their jobs and are having a hard time finding new positions in their fields. The cutbacks in defense and space spending have hurt employment opportunities in many related and supporting fields. In the future, engineers with the skills to solve problems in the areas of ecology and urban living will probably be in demand. They will be concerned with issues like smog control, sewage treatment, and slum rehabilitation. This change in employment opportunities will not occur over night, however. These new engineering jobs will be available in large numbers only when suffiecient money is allocated for solving our nation's serious social and environmental problems.

Part 2

Electrical engineers design and develop the circuits, systems, and electrical components that provide electricity. The activities below deal with a simple type of circuit and introduce some basic ideas which an electrical engineer must know about. These activities are optional if you already have done very similar activities or if you are not able to obtain the needed equipment.

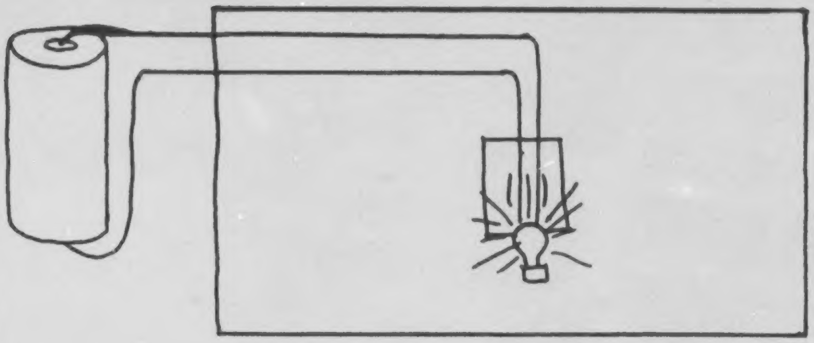
Materials: 1-1/2 volt dry cell battery, flashlight bulb
(with or without holder), electrical wire,
5" x 8" cards, stapler

Strip an inch or so of insulation off each end of a 5" piece of wire. Wrap one end of the wire around the base of the flashlight bulb so it holds the bulb tightly. Bend the rest of the wire in the shape of the letter C as in the illustration on the following page. Set the tip of the flashlight bulb on the central terminal of a flashlight battery and adjust the other end of the wire so that it is against the bottom of the cell. If the connections are tight, the bulb should light as electricity passes through the metal wires in the bulb.



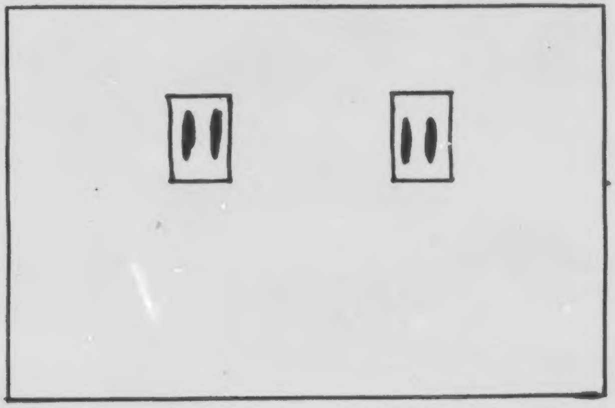
You have now set up a simple electric circuit. But have you ever wondered how the electrical outlets in your home are wired? The following activity deals with a parallel circuit which is a common way of wiring circuits in homes.

On the next page is an illustration of a model of the wiring of one outlet, such as would be used to plug in an iron or toaster in your home. On your 5" x 8" card, draw this pattern and then cut the wire and lay it out on the card with staples. Now test your circuit by attaching the dry cell battery to the ends of the wire at one end and then touching the wires at the socket to a flashlight bulb, with or without the holder. If the circuit is working, the bulb should light.



But in your own home you usually have two wall sockets at each electrical outlet. Using the toaster and iron as an example, you can operate the toaster only, the iron only, or both the toaster and iron. Given the illustration below, how would you wire a circuit so that you could "plug" in your flashlight bulb at either outlet or at both outlets at the same time? (The insulation on the wires must be stripped wherever the wires are joined together in order to make an electrical contact.)

On the Answer Sheet on the last page of this booklet, you will find an illustration of one way to wire such a parallel circuit.

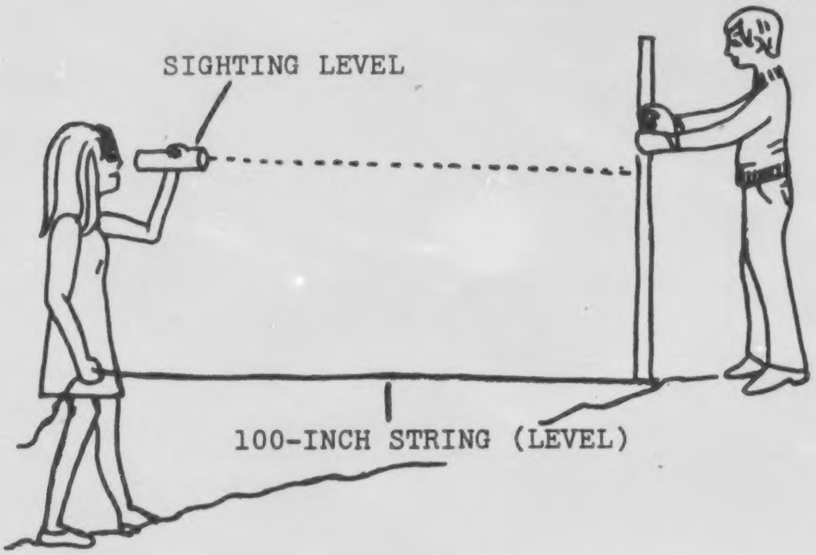


Part 3

Civil engineers take many factors into consideration when designing a structure. Before any project is built, they have a detailed survey of the construction site prepared which includes such information as the location and measurement of points, elevations, and contours of the land. The following activity involves you in making rough measurement of the slope of land, such as would be used by a civil engineer in planning how to construct a project.

Materials: 6" piece of cardboard tube, string (preferably a little over 100" long), a stick about as tall as you are, a tape measure, pencil

You will need to work with another student so one of you can be the sighter and one of you can be the holder. Find an area where there is a slant to the land. Mark on the stick the height of the eye level of the sighter when he is standing straight. Have the holder stand on the higher land and hold the stick straight up and down with the string tied to the bottom.



The sighter should stand on the lower land and hold the other end of the string so the string is level as in the picture. Then the sighter should hold the tube parallel to the string. It is important to hold the tube as straight as possible. Now the sighter should look through the tube at the stick and instruct the holder to place a finger on the stick so that it is in the middle of what the sighter sees as he looks through the tube. Now have the holder make a mark where his finger is. Measure the distance from the two marks on the stick. Slope is measured in percent, so you can find the slope at the location where you measured by this formula:

$\text{Slope} = \frac{\text{number of inches between the two marks}}{\text{length of the string in inches}}$. Thus, if the measurement between the two points on the stick is 10", and you used a string 100" in length, the slope is 10/100, or 10%. Record your measurements and try measuring the slope between two other locations.

Part 4

Mechanical engineers design machines which use or produce power. When the first bicycle was built, it was a remarkable piece of engineering. Study a bicycle and observe how the force applied to the pedals results in the rotation of the wheels.

1. When you look at a bike, you will see that a chain connects two toothed wheels, or gears. As you push on the pedal, you turn the large gear. The connecting chain makes the small gear turn, too, causing the rear tire to rotate.

Turn the bicycle upside down. Mark with a piece of chalk a spot on the rear tire. Now turn the pedal through one complete revolution and count the number of revolutions the rear wheel makes. What are the results?

2. If the bicycle has different speeds, change the gear and repeat the step above. What happens to the number of turns of the tire each time you turn the pedal one complete revolution?
3. Compare the radius of the small gear and the radius of the large gear. How does the relationship between the size of the two gears compare with the number of times the rear wheel turns when the pedal turns once?
4. Now find out how far forward a bike will travel with one revolution of the pedal. Measure the circumference of the wheel, the distance around the outside of the tire. Multiply the circumference by the number of turns the wheel makes when the pedal is turned once.

You can see that the distance the bike moves forward is more than the distance that you move the pedal. A bicycle is a simple example of a machine that engineers have designed which enables a person to get a job done with less force than would be required without the machine.

Part 5

Aeronautical engineers must know the principles of aerodynamics to design planes which have lifting power, control, stability, and strength. After an engineer has designed a plane, a prototype, or experimental model, is constructed and tested.

You can learn about some of the considerations in designing a plane by making and testing your own paper airplanes. First, talk with your teacher about this activity and arrange a place where you can try out your paper planes.

With another student or two, make several different kinds of airplanes. Try out some radically different designs just for fun. Now try out your planes and compare them on such qualities as the distance they fly and the length of time they stay in the air.

Now analyze your designs and try to determine why some planes performed better than others. For example, how did the plane that traveled the farthest differ from the other planes? How might you use this characteristic to design a plane that would fly even farther?

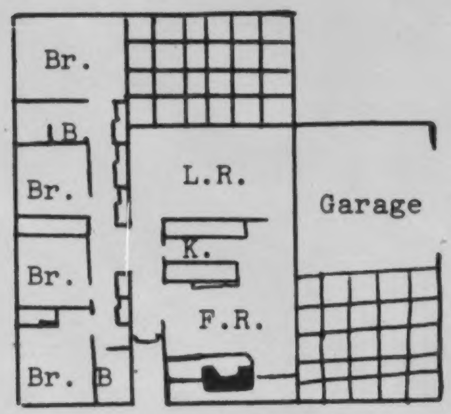
Part 6

The work activities of an engineer depend on his specialty, but they also depend on the type of job he has. You have learned about four engineering specialties, but there are many others. Engineers work on different types of jobs, too. Engineers work in research and development, construction, production, management, sales, and teaching, all of which involve different work activities. Some engineers specialize in one particular job during their career, while many have a variety of types of jobs during their career.

Part 7

Try your hand at designing a building. The building could be a house, a school, a recreation center, or some other type of building. Be as imaginative as you want. You don't have to build it, just design it. Draw a rough sketch of the building from the outside and a floor plan of the building.

Below is an example of a floor plan of a house. A floor plan shows the location and size of rooms, hallways, entrances, windows, and other important parts of a building.

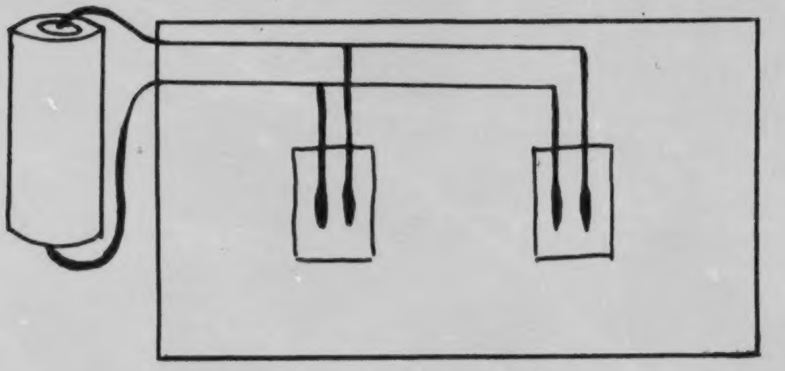


Before you draw your own floor plan, consider what you will want in your building. For example, in a school, you will want to have room for many people. How many rooms will you need and how big should they be? Should all the rooms be the same size? Where will the bathrooms be located so they will be accessible? Do you want one large building or several small ones? Will you have a gym, a cafeteria, a library? These are the kinds of things you will want to consider in designing your building.

Now draw your floor plan and a rough sketch showing what the building will look like from the outside. When you are finished, arrange with your teacher to display your drawings in the classroom if you wish.

ANSWERS:

Below is an illustration of a model of a parallel circuit.



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EXPLORING GOALS
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STUDENT GUIDE Sr. 207(74)
I-1

ENGINEERING AND ARCHITECTURAL OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Engineering, Physical Science, Mathematics, and Architecture group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit, you should be able to:

1. Describe the employment opportunities for engineers.
2. Explain what types of courses and how much education are required for engineers.
3. Describe the main kinds of work activities done by the following types of engineers: electrical, civil, mechanical, and aeronautical.
4. Identify the main work activities of an architect.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

What type of engineer would be most concerned with the planning, design, or inspection of an airfield?

a. Civil

b. Electrical

c. Mechanical

d. Aeronautical

STUDENT DIRECTIONS:

_____1. Read pp. 161-163 in "Occupations and Careers" up to the section on "Electrical engineers . . ."

_____2. Read Part 1 of the Student Information Booklet, "Engineering and Architectural Occupations."

☐ 3. Arrange with your instructor to see the filmstrips and listen to the records, "Preparing for Jobs in the 70's," Parts I and II. As you watch the filmstrips, list the projects mentioned that need engineers in the space below.

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_____4. On p. 161 of Occupations and Careers, review the types of courses and amount of education required for an engineer.

_____5. In the space below, make a chart comparing the amount of education required for an engineer with the amount of education required for a chemist or physicist (p. 174 of Occupations and Careers) and for an engineering technician (p. 199 of Occupations and Careers).

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_____6. Make a list of courses available at your high school which would be helpful to a student who is interested in engineering.

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_____7. Read from "Electrical Engineers" on p. 163 of Occupations and Careers up to the section on "Architects" on p. 164.

_____8. To learn more about the engineering specialties of electrical engineering, civil engineering, mechanical engineering, and aeronautical engineering, do the activities in Parts 2, 3, 4, and 5 of the Information Booklet, "Engineering and Architectural Occupations".

_____9. On the following page, briefly describe the main work activities done by the different types of engineers listed. Check your work with the information provided on p. 163 of Occupations and Careers.

Electrical engineer______________________________

____

Civil engineer______________________________

____

Mechanical engineer______________________________

____

Aeronautical engineer______________________________

____

____10. Review the third paragraph on p. 161 of Occupations and Careers and read Part 6 of the Student Information Booklet, "Engineering and Architectural Occupations."

____11. Read the section on "Architects" on pp 165 and 166 of Occupations and Careers.

____12. Do the activities listed in Part 7 of the Student Information Booklet, "Engineering and Architectural Occupations."

____13. Describe briefly, in the space below, the main work activities of an architect. Check your answer with the section in Occupations and Careers.

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____14. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

For information in the area of Engineering listen to any one of the following tapes.

"Chemist"-VG705
"Architect"-BG741
"Stationary Engineer"-VG749

1) What does the worker do in this occupation?

2) What practical experience is required and how does one get it?

3) How do you prepare for this occupation?

   Schooling required --

   Training --

   Cost --

4) What are the earnings?

   Beginning--

   Peak--

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TEST Sr. 207(74)

ENGINEERING AND ARCHITECTURAL OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following best describes the employment outlook for engineers?

   a. It is and always will be excellent.

   b. It is expected to be very good for engineers with advanced training in defense systems.

   c. It will always be poor because of recent spending cutbacks.

   d. It is expected to be good in the future in the areas of ecology and urban living.

2. Which of the following businesses would be likely to hire the most engineers?

   a. A department store

   b. An airplane manufacturer

   c. An insurance company

   d. An automotive repair center

3. The demand for engineers is expected to

   a. increase rapidly.

   b. stay the same.

   c. decrease gradually.

   d. increase gradually in new fields.

4. Which of the following high school subjects is the most helpful for a career in engineering?

   a. English

   b. Foreign Language

   c. Science

   d. Social Studies

5. An engineer is usually required to have at least

   a. a high school diploma.

   b. two years of college.

   c. a college degree.

   d. a college degree plus at least two years of graduate school.

6. Engineering jobs in teaching and advanced research usually are open to persons having as a minimum

   a. a high school diploma.

   b. two years of college

   c. a college degree.

   d. a college degree plus at least two years of graduate school

7. Whay type of engineer specializes in the development of airplanes and spacecraft?

   a. Aeronautical

   b. Electrical

   c. Mechanical

   d. Civil

8. What type of engineer might typically plan a city's water and sewage system?

   a. Ceramic

   b. Civil

   c. Electrical

   d. Mechanical

9. Whay type of engineer is most concerned with the production, transmission, and use of power?

   a. Civil

   b. Mechanical

   c. Electrical

   d. Aeronautical

10. What type of engineer develops electronic equipment?

   a. Aeronautical

   b. Civil

   c. Electrical

   d. Mechanical

11. Which of the following best describes the work of an architect?

   a. Designs plans for buildings

   b. Designs plans for roads and bridges

   c. Makes contracts with clients to construct buildings

   d. Supervises workers at the construction site

12. Which of these tasks would most typically be done by an architect?

   a. Installing electrical wiring

   b. Ordering building materials

   c. Hiring construction workers

   d. The preparation of cost estimates for buildings

EXPLORING GOALS
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STUDENT INFORMATION SHEET

MATHEMATICAL AND PHYSICAL SCIENCE OCCUPATIONS   Sr. 207(74)
I-2

Part 1

You have probably learned many mathematical rules and principles in your math classes. For instance, you probably learned the commutative principle of addition, which states that the order in which we add two numbers does not change the sum (for example, 7 + 4 = 11 and 4 + 7 = 11). The theoretical mathematician is concerned with discovering such mathematical principles or rules and not with solving more practical kinds of problems, such as computing how long it will take a space craft to reach the moon.

Sometimes your math teacher asks you to solve a problem that you may face in your everyday life. For example, you may be asked to find out how much a box will hold. You can use mathematics to find the volume of the box by multiplying the length times the height times to width. You are asked to apply what you know about math to a problem. In the same manner, the applied mathematician uses the rules and principles of mathematics to solve a wide variety of problems.

Part 2

Summary of the Main Work Activities of a Chemist and Physicist

Chemist:

1. Makes tests to find out the chemical makeup of materials.
2. Uses his knowledge to make new products, such as plastic pipes used in modular homes.

Physicist:

1. Studies and discovers laws about the physical world; for example, the law of gravity--if you drop something, it will fall to the ground.
2. Uses his knowledge to develop new things, such as videotape cassettes.

EXPLORING GOALS
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STUDENT GUIDE Sr. 207 (74)
I-2

MATHEMATICAL AND PHYSICAL SCIENCE OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Engineering, Physical Science, Mathematics and Architecture group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following occupations are included in the group of Mathematical and Physical Science occupations: mathematician, statistician, physicist, and chemist.
2. Compare the work tasks of theoretical and applied mathematicians.
3. Describe the main work activities of a chemist and of a physicist.
4. Explain how much education is generally required to become a chemist or a physicist.
5. Describe the employment prospects for mathematical and physical science occupations.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

1. Which of the statements listed below describes a problem that would concern a theoretical mathematician in his work?
   a. Calculating the number of marbles that will fill a shoe box
   b. Computing how long it will take an airplane to cover a certain distance at a specific speed
   c. Determining the amount of lace necessary to go around a dressing table of a specified diameter
   d. Thinking of a new way to express the relationship between two mathematical concepts

STUDENT DIRECTIONS:

_____1. Read pp. 166 and 167, "Mathematics," in Occupations and Careers.

_____2. Read Part 1 of the Student information sheet, "Mathematical and Physical Science Occupations."

_____3. In a sentence or two, describe a project you may have worked on at school outside of math class or at home that involved using a mathematical rule.

4. In your own words, write two or three sentences explaining the difference between the work tasks of a theoretical mathematician and those of an applied mathematician. If you have difficulty, discuss it with your instructor.

5. Read from p. 172 through the first half of p. 175, "Physical Sciences," in Occupations and Careers.

6. Read Part 2 of the Student information sheet"Mathematical and Physical Science Occupations".

7. In a short paragraph, describe the main work activities of a chemist and of a physicist.

_____8. Look at the chart on page 174 of Occupations and Careers. Answer the following questions in the space provided.

a. What education is generally required for a chemist?

____

b. What education is generally required for a physicist?

____

c. A bachelor's degree usually takes four years and a graduate school usually takes from one to four years. About how many years of education beyond high school does it take to get the degree required for a beginning job as a chemist or a physicist?

____

_____9. Read p. 166, "Mathematics and Natural- Science Occupations," and pp. 167-169, "Statisticians" in Occupations and Careers. Also look at the last column of the chart on p. 174 for the occupations of mathematician, statistician, chemist, and physicist.

_____10. Answer the following questions from your reading. You may work with another student if you wish.

a. List several jobs that are done by each of the following persons:

Mathematician:______________________________

____

____

Statistician:______________________________

____

____

____

Chemist:__________________________________

____

____

Physicist:________________________________

____

____

b. Write a sentence or two telling what effect on employment prospects in mathematical and physical-science occupations you would expect if the government drastically reduced the amount of money spent on scientific research.

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____

c. Write a sentence or two describing the employment opportunities for mathematicians and physical scientists.

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____11. You have just learned about the occupations of mathematician, statistician, physicist, and chemist. Remember that these occupations are examples of some of the occupations included in LRG I: ENGINEERING, PHYSICAL SCIENCE, MATHEMATICS AND ARCHITECTURE.

____12. When you have completed all the activities in this student guide you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to the following tape and answer the questions below.

VG 705 -- Chemist

1) What are the job requirements?

2) What preparation is required?
Schooling--
Training--

3) What are the earnings?
Beginning--
Peak--

TEST

MATHEMATICAL AND PHYSICAL SCIENCE OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following occupations is included in the group of mathematical and physical science occupations?
   a. Accountant
   b. Statistician
   c. Mechanic
   d. Electrical engineer

2. Which of the following occupations is included in the group of mathematical and physical science occupations?
   a. Psychologist
   b. Technician
   c. Pharmacist
   d. Chemist

3. Of the following, which best describes the work of a chemist?
   a. He performs tests with chemicals to develop new products.
   b. He supervises the making of chemicals.
   c. He sells chemicals to manufacturing industries.
   d. He uses chemicals to develop photographs.

4. Which of these best describes the work of a physicist?

   a. He studies the physical characteristics of the earth.

   b. He studies the physical characteristics of man and his environment.

   c. He discovers and uses knowledge of the physical world.

   d. He supervises the manufacture of products such as transistor batteries.

5. Which of these statements best describes the work of an applied mathematician?

   a. He figures out insurance rates.

   b. He keeps track of financial records for business companies.

   c. He develops mathematical principles and reasoning.

   d. He uses the principles of mathematics to solve problems.

6. Which of these statements best describes the work of a theoretical mathematician?

   a. He uses statistical methods to collect and analyze information.

   b. He develops mathematical principles and reasoning.

   c. He uses the principles of mathematics to solve practical problems.

   d. He uses scientific principles to design products.

7. How much education is generally needed to become a chemist?

   a. A high school education

   b. Two years of college

   c. Four years of college

   d. More than 8 years of college

8. How much education is generally needed to become a physicist.

   a. A high school education

   b. Two years of college

   c. Four years of college

   d. More than 8 years of college

9. The employment outlook for the mathematical and physical science occupations is

   a. excellent for anyone interested in science or math.

   b. very good for people with advanced education in science or math.

   c. fair, with a steady number of job openings.

   d. poor, with a decreasing number of job openings.

10. If there were a sharp reduction in the amount of money spent on scientific research, the number of jobs in mathematical and scientific occupations would probably

   a. increase.

   b. increase slightly.

   c. stay the same.

   d. decrease.

EXPLORING GOALS
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STUDENT INFORMATION SHEET

Sr.207(74)
II-1

HEALTH SERVICE OCCUPATIONS

Part 1

The pharmacist takes responsibility for the health and often the life of his customers and must prepare and distribute medications with care and accuracy. All pharmacists must be able to make up and test drugs, but there are a variety of other duties performed by pharmacists. For example, the pharmacist working in a drugstore often must be a businessman too. He often buys and sells many items such as toiletries, cosmetics, and magazines and he hires and supervises other workers in the store. Usually the pharmacist who works in a hospital spends most of his time preparing drugs and advising doctors and other members of the hospital staff on the selection and effect of different drugs. A pharmacist who works as a medical sales representative must be a salesman as well as a pharmacist. He spends much of his time contacting doctors and pharmacies to inform them about the drugs he is selling. Pharmacists have a variety of jobs to choose from, each emphasizing different skills. The employment outlook for pharmacists is very favorable and pharmacy is a promising career field for both men and women.

Part 2

There are three basic programs for the training of professional nurses, all of which involve classroom instruction and supervised practice in nursing skills.

a. Hospitals offer 3-year training programs which are particularly good preparation for hospital nursing. Hospitals presently train about 80 percent of our nurses.

b. Colleges offer broader programs lasting 4 or 5 years which enable students to receive a college degree and provide good preparation for graduate work and for top nursing positions.

c. In addition, junior or community colleges offer a shorter 2-year course which does not include as much practical nursing experience as the other two programs.

A person interested in nursing should investigate all three types of programs to determine which one best fits his or her individual needs.

TAPE SCRIPT

AN INTERVIEW WITH DR. LARSEN

Announcer: Joan is a junior in high school and is interested in health service occupations. She wanted to learn more about becoming a doctor and asked her family physician, Dr. Larsen, to talk with her about his job.

Joan: Hi, Dr. Larsen.

Dr. L.: Hello, Joan. Sit down. How's your mother feeling?

Joan: Fine. She's been taking the pills you prescribed for her and she is feeling much better now.

Dr. L.: Good. I thought they would help.

Joan: Dr. Larsen, I'm learning about different jobs at school and now I'm studying health service occupations. Could you answer some questions about your job and the training you received to become a doctor?

Dr. L.: Sure. I have a patient coming in 10 minutes, but we can talk until then. What do you want to know first?

Joan: Well, first I'd like to know what you do during a typical day.

Dr. L.: Most of my days are busy ones. In the morning I see the patients who can't come to the office by making house calls and visiting the General City Hospital. Afternoons I spend here in the office seeing patients. Often there is work to do in the evenings, too. Sometimes I see more patients and sometimes I catch up on reading my journals so I can stay aware of new medical developments.

Joan: Being a doctor takes a lot of time and work!

Dr. L.: Yes, it does. But it is satisfying work. I feel rewarded when I can use my training to help other people.

Joan: What kind of training do you have to have to become a doctor?

Dr. L.: It takes at least 8 years after high school to train to become a physician; more than 8 years if you want to specialize in a particular field such as surgery or pediatrics.

Joan: Eight years! Wow! That's 2 more years than junior and senior high school combined. You must have really wanted to be a doctor.

Dr. L.: Yes, I did. But I didn't decide for sure until after 4 years of college. I had planned on becoming a doctor and with the help of my advisor selected courses in college that would help me in medical school. My major was biochemistry and I considered taking a job with a drug company after college. I wasn't sure I wanted to go to school for 4 or 5 more years to become a doctor and it was a difficult decision.

Joan: How did you decide?

Dr. L.: Well, I was engaged to my wife at the time and we talked it over. We both knew it would mean we wouldn't have much money for a while, but since I really wanted to be a doctor, we decided that I should go ahead and apply for medical school.

Joan: Was it hard to get into medical school?

Dr. L.: Yes. Many more students apply for medical schools than they have room for. I had a B+ average in college and scored well on the Medical College Admission Test, but the competition was tough and I wasn't accepted at all the medical schools where I applied.

Joan: What did you study for 4 years in medical school?

Dr. L.: The first 2 years I took courses in anatomy, physiology, pathology, and other subjects to gain the basic knowledge I needed to become a doctor. The last 2 years I spent much of my time in the hospital working with patients.

Joan: How did you pay for your way through school?

Dr. L.: My wife worked part of the time and I took out a loan to meet the rest of the expenses. We couldn't afford a car and had to budget our money carefully, but we managed.

Joan: Then did you start working in this office?

Dr. L.: No. I had to spend a year working as an intern in the General City Hospital before I could start my own practice.

Joan: I didn't realize that it took so long to become a doctor.

Dr. L.: There is a lot for a physician to learn, Joan, and it is important that a doctor receive thorough training.

Joan: Thank you for answering my questions. Now I have a better idea of what a doctor does and the training he needs.

Dr. L.: You're welcome. I enjoyed talking to you and I'm glad to know you're interested in a medical career. If you have any more questions later, feel free to come in and ask me about them.

Joan: Thanks again, Dr. Larsen. Good-bye.

Dr. L.: Good-bye, Joan.

EXPLORING GOALS
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II-1

HEALTH SERVICE OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Medical and Biological Sciences group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following occupations are included in the family of Health Service Occupations: physician, dentist, pharmacist, nurse, and veterinarian.

2. Describe the educational requirements that a learner must meet in order to become a physician.

3. List two factors that a recent graduate of a college of dentistry would consider in setting up a dental office.

4. Describe the work activities of pharmacists employed in drugstores, in hospitals, and as drug salesmen.

5. Identify the length of each program at three types of institutions that offer training programs for professional nurses.

6. Describe the work activities of a veterinarian.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

1. Which of the following statements lists a work activity of a pharmacist employed in a hospital.

   a. hire and supervise other workers in his store

   b. buy and sell items such as cosmetics and toiletries

   c. advise doctors on the selection and effect of different drugs

   d. contact pharmacies to inform them about new drugs

STUDENT DIRECTIONS

_____1. Read the sections on "Health-Service Occupations" and Physicians" on pp. 153 and 154 in Occupations and Careers.

_____2. Listen to the tape, "An Interview with Dr. Larsen." Follow along in the tape script attached to the Student Information Sheet, "Health Service Occupations."

_____3. In a short paragraph, describe the post-high school requirements that a student must meet in order to become a physician.

_____4. Read the section on "Dentists," p. 154 in Occupations and Careers.

5. Meet with one or two other students, if possible, and suppose that you have just finished dental school and want to set up a practice together. Decide how you would solve the following problems:

a. How would you decide where to locate your office? List several factors you would consider in making this decision. For example, you may want to consider the number of dentists already in an area. Describe the kind of location you would like for your office.

b. How would you obtain the money necessary to start your office? List the expenses you would have in starting up an office and decide how you could obtain the money you need.

c. What help do you need? Decide what help you would need, such as dental assistants and secretary, and write an ad to put in the paper to advertise for these workers.

d. What will your office hours be? Decide on your office hours and set up a fair work schedule.

e. Are there any other decisions you should make? List them below

_____6. List two factors that you think are the most important for a young dentist to consider before setting up an office.

1. ______________________________

2. ______________________________

_____7. Read the section on "Pharmacists" on pp. 154 and 155 in Occupations and Careers.

_____8. Read Part 1 of the Student Information Sheet, "Health Service Occupations."

_____9. In your own words, write a brief description of the work activities of a pharmacist working: (a) in a drugstore, (b) in a hospital, and (c) as a drug salesman.

(a)____

____

(b)____

____

(c)____

____

____10. Read p. 155 on "Professional Nurses" in Occupations and Careers and look at the chart on p. 158 under "Professional Nurse."

____11. Read Part 2 of the Student Information Sheet, "Health Service Occupations."

____12. List the three types of institutions which offer training programs for profesional nurses and tell the length of each program.

1. ____

____

2. ____

____

3. ____

____

____13. Listen to the tape entitled "Nurse Registered" and answer the following questions.

1) What special abilities are required?

2) What are the usual working conditions?

3) What are the earnings?

____14. Read the section on "Veterinarians," pp. 155-156 in Occupations and Careers. Study the listing "Veterinarian" in the chart on p. 158 to learn about employment opportunities in this field.

____15. You have just read about what veterinarians do. To practice some of their on-the-job activities, use the Job Experience Kit, "Veterinarian." Read the booklet in the kit and follow the directions in it. Keep your completed answer sheet with this Student Guide.

____16. List the five occupations that have been discussed in this unit. All these occupations are included in the group of Health Service Occupations.

1. ____

2. ____

3. ____

4. ____

5. ____

____17. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT

Of the following tapes select and listen to one of them. Then answer the following questions.

VG 704 -- "Biologist"
VG 721 -- "Physician"

1) Is the occupation growing or declining?

2) What personal and physical characteristics are required for this work?

3) What are the usual working conditions?

Days--

Hours--

Vacation provisions--

TEST

HEALTH SERVICE OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. The minimum education needed to become a doctor is

   a. 4 years of college.

   b. 4 years of college and 2 years of medical school.

   c. 4 years of college and 4 years of medical school.

   d. 4 years of college, 4 years of medical school, and one or more years as an intern.

2. Which type of town would probably be the best location for a new dentist to open an office?

   a. A small town with many dentists

   b. A small town with very few dentists

   c. A large town with many dentists

   d. A large town with very few dentists

3. Which of the following would probably not be an expense for a new dentist starting his own practice?

   a. Cost of dental equipment

   b. Salary for an assistant

   c. Rent for office space

   d. Newspaper advertisements for patients

4. Which of these statements best describes the work of a pharmacist employed in a drugstore?

    a. He advises doctors about how to prescribe drugs.

    b. He does chemical tests on blood samples.

    c. He often buys and sells a variety of products.

    d. He prescribes drugs and medicines to customers.

5. Which of these statements best describes the work of a pharmacist employed in a hospital?

    a. He gives medicine to patients.

    b. He fills prescriptions ordered by doctors.

    c. He contacts other pharmacists to tell them about new drugs.

    d. He prescribes drugs and medicines for patients in the hospital.

6. Which of the following best describes the work of a pharmacist employed as a sales representative?

    a. Informs doctors and pharmacists about new drugs.

    b. Hires and supervises other workers.

    c. Mixes ingredients to form pills.

    d. Does chemical tests on drugs.

7. The training programs for professional nurses offered by hospitals usually last

    a. one year

    b. two years.

    c. three years.

    d. four years.

8. The training programs for professional nurses offered by hospitals usually last

   a. one year.

   b. two years.

   c. three years.

   d. four years.

9. The training programs for professional nurses offered by junior colleges usually last

   a. 1 year

   b. 2 years.

   c. 3 years.

   d. 4 years.

10. Which of the following phrases describes a typical work activity of veterinarians?

   a. bathing and clipping poodles

   b. checking the poultry in grocery stores to make sure it is fresh

   c. treating animal diseases and making sure they are not transmitted to humans

   d. counting members of endangered animal species to determine whether or not they are becoming extinct

11. Which of the following occupations is included in the group of Health Service occupations?

   a. Physicist

   b. Sanitarian

   c. Technician

   d. Physician

12. Which of the following occupations is included in the group of Health Service occupations?

    a. Hospital administrator

    b. Pharmacist

    c. Counselor

    d. Social worker

[illegible]

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207 (74)
II-2

BIOLOGICAL SCIENCE OCCUPATIONS

THE POINT

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Medical and Biological Science group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit, you should be able to:

1. Identify the following as Biological Science occupations: botanist, microbiologist, and zoologist.
2. Select from a list of topics those which would most likely be the concern of botanists, or microbiologist, or of zoologists.
3. Describe the employment opportunities for biological scientists.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

1. Which of the following topics would be of most concern to a zoologist in his work?
   a. The behavior of insects
   b. The chemical composition of new plastics
   c. The improvement of food producing crops
   d. The growth pattern of a virus

STUDENT DIRECTIONS:

_____1. Read the section on "Biological Sciences" on p. 169 of Occupations and Careers.

_____2. To learn more about what subjects are of concern to biologists, locate a biology textbook and study the Table of Contents. In the spaces below, list the major biological subject areas you find in the textbook.

____

____

____

____

_____3. Put an "x" beside the following subjects that interest biological scientists on the job. Check your answers with the answer sheet at the end of this Student Guide.

_____a. Patterns of ocean tides

_____b. Development of disease-resistant crops _____c. Chemical composition of plastics

_____d. Behavior patterns of insects

_____e. Chemical composition of the atmosphere

_____f. Small organisms such as bacteria

_____g. Weather forecasting

_____h. Survival of rare birds

_____i. Stars and galaxies

_____j. Human digestion

_____k. Relationships between organisms and their environment

_____l. Measurement and prediction of earthquakes

_____m. Protecting food from insect pests

_____n. Control of diseases caused by microorganisms

_____o. Development of rock formations

_____4. Listen to the tape"VG 704-- Biologist"and answer the following questions.

1) Does the work require a license or certificate? __________

2) What similar or related occupations might the worker turn to for greater opportunities or satisfaction?
____

3) How much school and/or training is required? __________

_____5. Match the following topics with the type of biological scientist who would most likely be concerned with the topic. Check your answers with the answer sheet at the end of this Student Guide.

1. Botanist	_____a. Mating patterns of fish
2. Microbiologist	_____b. Feeding habits of birds
3. Zoologist	_____c. Life processes of birds
	_____d. Classification of Plants
	_____e. How the body of man fights virus infections
	_____f. Different parts of plants

_____g. Animal diseases

_____h. Plant diseases

_____i. Relationship of bacteria and disease

_____6. Look at the chart on p. 174 of Occupations and Careers under biological sciences and find out the employment opportunities and educational requirements for biological scientists. List them below.

Approximate Employment in Early 1967	Educational and Other Requirements	Employment Outlook

_____7. Recently there has been an increasing concern about ecology, that is, the relationship of man, animals, and other organisms (like the bacteria) to their physical environment. Ecology is a field of biology that has recently become more and more important. The work of an ecologist takes in many areas of biology and other sciences. He may study the effects of changes in moisture in the air on forests and wildlife as the result of a newly formed lake behind a dam. He may study man in heavily populated cities or in space travels.

In the space provided on this and the next page, list several examples of environmental problems in your own local area, such as pollution or erosion. For each example, write down some of the causes of the problem, and some of the things that ecologists might suggest to correct the situation. If you need more space than has been provided, use another sheet of paper.

_____8. In a sentence or two in the space below, explain how you think the increased concern about ecology may effect job opportunities for biological scientists.

_____9. You have just learned about the occupations of botanists, microbiologists, and zoologists. Remember that these biological science occupations are examples of some of the occupations included in LRG II: Medical and Biological Sciences.

_____10. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ANSWERS:

Activity 3. You should have an "x" beside b, d, f, h, j, k, m, and n.

Activity 5. You should have the following answers:

a. 3
b. 3
c. 3
d. 1
e. 2
f. 1
g. 3
h. 1
i. 2

TEST

BIOLOGICAL SCIENCE OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following subjects would be of most concern to biological scientists?
   - a. The basic laws of the physical world
   - b. The composition and characteristics of the earth
   - c. Living organisms and their relationship to their environment
   - d. Human beings and their social behavior

2. Which of the following titles refers to a biological scientist who specializes in the study of very small organisms?
   - a. Meteorologist
   - b. Microbiologist
   - c. Pathologist
   - d. Zoologist

3. Which of the following titles refers to a biological scientist who specializes in the study of plants?
   - a. Agronomist
   - b. Botanist
   - c. Geologist
   - d. Microbiologist

4. Which of the following titles refers to a biological scientist who specializes in the study of animal life?

   a. Botanist

   b. Entomologist

   c. Oceanographer

   d. Zoologist

5. Which of these topics would be of most concern to microbiologists?

   a. Behavior patterns of insects

   b. The growth of bacteria

   c. The causes of disease in plants

   d. Patterns of ocean tides

6. Which of the following topics would be of most concern to botanists?

   a. Chemical composition of food

   b. Human resistance to disease

   c. How plants reproduce

   d. Life cycle of wild animals

7. Which of the following topics would be of most concern to zoologists?

   a. Improved farm crops

   b. New antibiotic drugs

   c. Development of rock formations

   d. Migratory patterns of birds.

8. Which of the following best describes the employment outlook for biologists?

   a. There will be a constant drop-off in the number of jobs in all branches of biology.

   b. There will be some opportunities for biologists who are well-trained in research, but very few opportunities for other biologists.

   c. There will be so many jobs opening up in biology that little, if any, training will be required.

   d. There will be excellent job opportunities, but most of these will be for biologists with graduate degrees.

9. Because of the recent concern with ecology, you would expect the number of jobs for biological scientists to:

   a. stay the same.

   b. increase.

   c. decrease.

10. In order to teach in a college, a biological scientist is usually required to have:

    a. a high school degree.

    b. two years of college

    c. four years of college.

    d. more than four years of college.

EXPLORING GOALS
MINI ~ PAC

STUDENT INFORMATION SHEET

Sr.207(74)
III-1

BUSINESS ADMINISTRATION OCCUPATIONS

Part 1

Many decisions must be made and carried out in order to operate a busienss successfully. For example, just think about how many decisions you would have to make to manage a business as simple as a lemonade stand! First you would have to obtain supplies--lemonade, ice, a container in which to make the lemonade, cups in which to serve it, and materials with which to construct the stand. Next you would need to decide on a location for your stand where possible customers would pass by. You would need to decide how much to charge for the lemonade--if the price is too high, people won't buy it, but if it's too low, you won't make any profit. You would also have to arrange for someone to stay with the stand; you could devise a method of advertising to attract more customers, and you would keep track of the money you collect to see if you are making a profit. If running a lemonade stand involves this much planning, you can imagine how many decisions must be made in managing a large company or store.

The main duties of a manager are:

1. to be responsible for planning and directing part or all of the operations of a company,
2. to assign jobs to other workers and check on how well they perform their jobs, and
3. to make decisions on how his department or the company should be run.

Answers to Activity #7:

1. top level
2. middle level
3. first level

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207(74)
III-1

BUSINESS ADMINISTRATION OCCUPATIONS

THE POINT:

The The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Business Administration group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Explain the main duties of a business manager.
2. Recognize the main differences among the jobs of first-level, middle-level, and top-level managers.
3. Identify how much education is generally required for a business manager.
4. Describe the employment opportunities for managers.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

Middle-level management includes:

a. supervisor positions.

b. trainee positions.

c. top jobs in large departments.

d. the top officials of a company.

STUDENT DIRECTIONS:

_____1. Read the first paragraph on p. 202 of Occupations and Careers.

_____2. Read Part 1 of the Student Information Sheet, "Business Administration Occupations."

3. Working alone or with other students develop a plan for establishing your own store. You could plan a bookstore for your school, a sporting goods store, a teenage dress boutique, a record shop, or any other kind of store you are interested in. Decide on what kind of store you want to start and where you will locate the store. Then assign one of the following management jobs to each of the persons in your group: sales, advertising, personnel, accounting. If you a are studying alone, choose just one of these jobs. The job duties of each of these managers are as follows:

Title	Job Duties
Sales Manager	Should consider what people will buy and decide what to stock in the store.
Advertising Manager	Should plan an advertising campaign for your store and make sample ads.

Title	Job Duties
Personnel Manager	Should decide how many people you need to hire to work in the store and what their wages, hours, duties, and necessary qualifications will be.
Accounting Manager	Should list the expenses of the store and the expected sources of income of the store.

In the spaces below, write down the plans you have made for the management position you chose. If you are working with other students you should discuss your plans with the other managers when necessary. For example, the sales, advertising, and personnel managers should all inform the accounting manager of any expenses their departments will have. Then, meet as a group and discuss the plans of each manager for your store.

_____4. Using examples from your management experience in activity #3 above, if possible explain in a few sentences each of the main duties of a business manager. These duties are listed in Part 1 of the Student Information Sheet, "Buisness Administration Occupations."

1. ____________________

____

____

2. ______________________________________

____

____

____

3. ______________________________________

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_____5. Read the material dealing with the three levels of managerial jobs on pp. 202-204 of Occupations and Careers, and answer the following questions.

1. What two positions are considered first-level managerial positions?

   a. ______________________________

   b. ______________________________

2. Why is it important for middle-level managers to understand how both their own departments and the entire company are run?

   ____

   ____

   ____

3. What are the duties of a top manager?

   ____

   ____

   ____

_____6. The duties of managers depend on the size and type of the company. The manager of a small shoe store would have duties very different from those of the president of a large oil company. Decide what level of manager in a large automobile manufacturing company would have the duties described below, and write your answer in the space provided.

1. A large automobile manufacturer must make a policy decision. Suppose many people are demanding smaller, less expensive cars. The development of a smaller car would be expensive and there would not be much profit on a small car. What level of manager would make the decision as to whether or not to attempt to produce a smaller car?

   ____

2. The automobile company has decided to try to make a smaller car. Now designs have to be drawn in the design department specifying how the car should be built. What level of manager would probably assign people to design the new car?

   ____

3. A smaller car has now been designed and tested and is ready for production. What level of manager would supervise the workers who put the car together in the factory?

   ____

The answers to these questions are given on the Student Information Sheet, "Business Administration Occupations."

_____7. Read pp.205 and 206 up to the section on "Advertising Workers" in Occupations and Careers and answer the following questions.

1. Is it necessary to study business in college to get a job as a beginning manager?

   ____

2. What is the usual educational requirement for a beginning manager?

   ____

_____8. Review page 206 in Occupations and Careers.

_____9. List five companies, large stores, government agencies, or institutions (such as hospitals or colleges) in your area that hire managers. You may work with another student if you wish. Check your completed list with your instructor.

1. ____

2. ____

3. ____

4. ____

5. ____

_____10. In a sentence or two, describe the employment opportunities for managers

____

____

____

____

_____11. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

From the following three tapes select and listen to one of them and then answer the following questions.

VG 701 -- "Advertising"
VG 726 -- "Public Relations"
VG 742 -- "Accountant"

1. What does the worker in this occupation do?

2. What machines, tools, apparatus and materials does he use?

3. What is the future outlook in this area?

4. What preparation is required?
   Schooling--
   Training--

TEST

BUSINESS ADMINISTRATION OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of these statements best describes the function of a business manager?

   a. He owns part or all of a business.

   b. He owns and operates a business.

   c. He is responsible for part or all of a business operation.

   d. He always supervises the work of hundreds of employees.

2. Which of the following tasks is usually part of the job of all managers?

   a. Deciding on the price of products

   b. Supervising other workers

   c. Deciding on the wages and salaries that workers receive

   d. Planning advertisements for products

3. How much education do employers usually require beginning managers to have completed?

   a. High school

   b. Two years of college

   c. Four years of college

   d. Four years of college and three years of graduate school

4. Which of the following tasks is usually part of the job of all managers?

   a. Buying needed materials and equipment for a business

   b. Making decisions on the basis of available information

c. Keeping track of the financial records of a business

d. Developing a sales campaign and training salesmen

5. Over the next ten years the number of job openings for managers is expected to:

   a. increase considerably.

   b. increase slightly, and then decrease.

   c. stay about the same.

   d. decrease.

6. Mr. Garcia is the vice-president of a large food-processing company. He helps decide on the policies of the company and on plans for future development. What level manager is Mr. Garcia?

   a. First-level

   b. Middle-level

   c. Top-level

7. Mrs. Price is the manager of the children's clothing department in a large store. She supervises several sales clerks and oversees the supply of merchandise. What level manager is Mrs. Price?

   a. First-level

   b. Middle-level

   c. Top-level

8. Bill walters is in charge of the sales department of a large typewriter manufacturing firm. He supervises many salesmen, makes decisions about how to run the department, and carries out company policies. What level manager is Mr. Walters?

   a. First-level

   b. Middle-level

   c. Top-level

9. Ed Olmstead is in a management trainee program at a large bank. Every few months Ed is assigned to work in a different department. What level manager is he?

   a. First-level

   b. Middle-level

   c. Top-level

10. Which of these statements best describes the future job opportunities for managers?

   a. Excellent opportunities for people with appropriate education and experience

   b. Excellent opportunities for people with a high-school education

   c. Fair opportunities for people with a ninth-grade education

   d. Poor opportunities since computers can now do much of the manager's work

11. Which of the following types of businesses will need managers in the years ahead?

   a. Manufacturing companies

   b. Stores

   c. Government agencies and institutions

   d. All of the above

EXPLORING GOALS
MINI ~ PAC

SP.207(74)
III-2

STUDENT INFORMATION SHEET
BUSINESS ADMINISTRATION OCCUPATIONS

Purchasing Agent - On the Job

Mr. Davis, purchasing agent for San Moreno County Hospital, came into his office early Monday morning. Monday is a busy day for Mr. Davis, who is responsible for obtaining all the supplies needed to keep the hospital operating. His secretary, Miss Sue Friedman, is already at her desk when he comes in.

"Good morning, Mr. Davis. I put the order forms I typed Friday on your desk for you to sign."

"Fine, Sue. I'll sign them first thing. Please ask Pete Skinner to see me when he comes in."

Mr. Davis enters his office, sits down at his desk, and reads over the purchase forms which his secretary has put there. They are the usual orders for linen, food, and office supplies and he signs his approval. Mr. Davis doesn't do much of the buying himself, but he supervises the activities of his assistants and signs his approval on their orders. Pete Skinner, one of Mr. Davis' assistants, sticks his head in the office door.

"Hi, Pete," Mr. Davis greets him. "Come on in. I want to talk with you about the order you made for drugs this week."

"Sure. I wanted to talk with you about that too," answers Pete as he sits down in front of Mr. Davis' desk.

"Pete, I see that you plan to place part of the order with a new drug company."

"Yes. Our old supplier increased prices on those drugs and the new drug company gave a much lower price. Besides, our old supplier has been slow about deliveries lately. I've talked it over with their salesman several times but it hasn't helped much. So I thought we should order some supplies from this new firm and see how it works out."

"Have you checked on the quality of the drugs made by this new firm?" asks Mr. Davis.

"Yes, and they have a good reputation for quality products."

"OK, Pete. It seems to me you have some sound reasons for making the change and I'll approve the order. Thanks for coming in."

As Pete leaves, Miss Friedman comes in. "Mr. Davis, there was a call from the Maintenance Department. The delivery of paper supplies arrived and they realized they'd ordered the wrong kind of paper towels. Their supply is low and they would like to make a special order for the right kind of paper towel. I know Ted is supposed to handle this, but he's away from the office right now."

"Thanks, Sue. I'll take care of it."

He thinks to himself, "The Maintenance Department should have been more careful in making out their requests for supplies, but if they need more paper towels, I can try to arrange a special delivery for them. The hospital is a steady customer of the paper supplier, and they might do this as an extra service." Mr. Davis picks up the phone and starts to dial.....

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207 (74)
III-2

BUSINESS ADMINISTRATION OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Business Administration occupations group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following jobs are included in the family of Business Administration occupations: advertising worker, purchasing agent, accountant, and airline pilot.
2. Describe the typical work activities of an accountant.
3. Describe the main work activities and employment opportunities for advertising workers.
4. Describe the main work actibities of a purchasing agent.
5. Describe the work activities of an airline pilot.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

Which of the sentences below describes a work activity of an accountant?

a. Assembling and analyzing information needed for effective advertising programs

b. Buying the materials, equipment and services needed by organizations

c. Handling relations between agencies and clients

d. Maintaining financial records and planning budgets for business enterprises or individuals

STUDENT DIRECTIONS:

_____1. Read the section on "Accountants and Auditors" on pp. 180-181 of Occupations and Careers.

_____2. Companies and government agencies, just like families and individuals, need to budget their money. They need to keep financial records on how much money they have, how much they spend, and how much they receive. They must also plan ahead so that they will have enough money to meet their expenses. Accountants plan budgets, develop systems for keeping financial records, check the accuracy of financial records, and analyze the meaning of financial statements.

How well do you keep account of your finances? For the next week, keep account of all the money you receive and what you do with it. If you have any questions about the following activities, discuss them with your instructor.

1. First plan a budget by estimating how much money you will receive and how you will use the money. Divide a piece of paper into three columns. In one column, list all the items you generally use money for during the week, such as food, bus fare, clothes, savings, etc. In the next column, estimate how much you spend in a week on each item. In the last column, list where you get the money for these expenses, such as part-time work, allowance, savings, etc.

2. Next develop a system for keeping track of the money you receive and how you spend it. Have a place to write down the amount of money you spend and a description of how you spend it. Also have a place to enter how much money you receive and where you get the money. Explain to your instructor how you plan to keep track of your money.

3. During the next week, keep a careful record of all the money you spend and all the money you receive.

4. At the end of the period, compare your original budget with your actual income and how you used it. Add up the amount of money you spent or saved and add up the amount of money you received. Both sums should be equal. See if you can account for where your money went.

When you have completed these four steps show your records to your instructor and explain your accounts.

_____3. Write a short paragraph describing the typical work activities of an accountant.

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____4. You have learned what accountants do. To practice some of their on-the-job activities use the Job Experience Kit titled "Accountant." Read the booklet and follow the directions in it. Keep your completed answer sheet (found in the kit) with this learner guide.

____5. Read the section on "Advertising Workers" on pp. 206-208 of Occupations and Careers.

____6. Look through magazines and newspapers and cut out six ads that appeal to you--that make you want to buy the product. Also cut out six ads that you don't think sell their product very well. Mark on the back of each advertisement whether you identified it as an effective ad or as an ineffective ad.

Then mix up the advertisements and have another student pick out the six ads that he or she feels are most effective. Check to see if both agreed and discuss what makes an ad effective.

If you are interested, try your hand at making up your own advertisement. The advertisement could be a slogan or a song for a radio ad, a skit for a TV ad, or a picture and text that could be used for a magazine or newspaper ad.

7. Discuss the following statement and the questions below it with one to three other students. If it is not convenient to have a discussion, write out a paragraph answering the questions and hand it in to your instructor when you have finished this unit.

> There is stiff competition for jobs in advertising, but there will be job openings for people with good training and developed abilities which are useful in advertising work.

1. In your own words, what does this statement mean?
2. How might this statement influence the career plans of a student who is considering advertising work as a long-term occupational goal?

____8. Write a brief paragraph describing the work activities and employment opportunities of advertising workers. If you have difficulty, review the sections you have just read.

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_____ 9. Read the section on "Purchasing Agents" on pp. 208-209 in Occupations and Careers.

____ 10. Read "Purchasing Agent--On the Job" on the Student Information Sheet, "Business Administration Occupations."

____ 11. Write a description of the main work activities of a purchasing agent. If you have difficulty, review your reading.

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____ 12. Read the section on "Pilots" on pp. 191-193 of Occupations and Careers.

____ 13. Managers have three main duties--to plan and direct, to supervise, and to make decisions. In a paragraph, explain how the work activities of an airline pilot also involve these three duties. Use information from your reading to write the paragraph.

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____14. List the four main occupations that have been discussed in this unit. These are some of the major occupations included in the group of Business Administration Occupations.

1. ____________________________________
2. ____________________________________
3. ____________________________________
4. ____________________________________

____15. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

From the following list of tapes select and listen to one of them and answer the following questions.

VG 701 -- "Advertising"
VG 726 -- "Public Relations"
VG 742 -- "Accountant"

1) What are the usual working conditions?

hours:

days:

vacation:

2) What practical experience is required?

How does one get it?

3) What are the earnings?

Beginning:

Peak:

Lifetime:

4) What tools, machines, apparatus and materials used to perform job?

TEST

BUSINESS ADMINISTRATION OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following jobs is included in the group of Business Administration occupations?

   a. Mathematician

   b. Computer programmer

   c. Accountant

   d. Economist

2. Which of these statements best describes the main tasks of an advertising worker?

   a. He decides how much money a company should spend on advertisements.

   b. He plans and prepares advertisements which will appeal to customers.

   c. He decides what products a manufacturer should make.

   d. He controls what products people buy.

3. Which of the following jobs is included in the group of Business Administration occupations?

   a. Manufacturer's salesman

   b. Purchasing agent

   c. Shipping clerk

   d. Lawyer

4. Which of these tasks might an advertising worker do as part of his job?

    a. Direct the training of salesmen

    b. Put up an advertisement on a billboard

    c. Pass out pamphlets advertising a product

    d. Prepare the drawing for an advertisement

5. Which of the following best describes the employment opportunities for advertising workers?

    a. A decreasing number of job openings is expected.

    b. A rapid increase in the number of job openings is expected.

    c. There will be many applicants for the available jobs.

    d. There will not be enough workers to fill available jobs.

6. Which of these statements best describes the work of an accountant?

    a. He performs mathematical studies with scientific information.

    b. He buys the materials, equipment, and services needed by an organization.

    c. He uses mathematics to figure out insurance rates.

    d. He keeps track of financial records of business and government agencies.

7. Which task might an accountant do as part of his job?

    a. Count the cash on hand at a bank

    b. Prepare a profit and loss statement

    c. Ring up sales on a cash register

    d. Figure out insurance rates

8. Which task might an accountant do as part of his job?

   a. Help people write legal contracts

   b. Operate a computer used by a business

   c. Plan a budget for a company

   d. Accept money paid by customers at a store

9. Which of the following would be most likely to employ a purchasing agent?

   a. A shoe repair shop

   b. A department store

   c. A dry cleaning shop

   d. A small bakery

10. Which of the following statements describes the job of a purchasing agent?

   a. Buys the materials, equipment, and services needed by an organization

   b. Resells materials purchased by a company

   c. Trains salesmen to deal with other manufacturers

   d. Purchases land and houses and resells them

11. Which of the following tasks might a purchasing agent do?

   a. Shop at a department store to buy needed supplies

   b. Meet with salesmen to examine sample goods

   c. Deliver items from the stockroom to where they are needed

   d. Unload trucks delivering supplies to an organization

12. Of the following, the duties of a pilot are most similar to those of a

  a. business manager.

  b. salesman.

  c. airplane mechanic.

  d. aeronautical engineer.

13. Which of the following tasks is often the responsibility of an airline pilot?

  a. To decide when flights should be scheduled

  b. To check the tickets of passengers as they board the plane

  c. To handle the needs of the passengers during the flight

  d. To prepare a flight plan before take-off

14. Which of the following tasks is often the responsibility of an airline pilot?

  a. Maintaining the engine of the plane in good repair

  b. Putting fuel in the plane before take-off

  c. Directing planes on how to land at an airport

  d. Checking the operation of the plane's controls

EXPLORING GOALS
MINI ~ PAC

STUDENT INFORMATION SHEET
TEACHING OCCUPATIONS

Sr. 207(74)
IV-1

Part 1

Work Activities of a Teacher:

1. Teaches classes (Elementary-school teachers--many different subjects; Secondary-school teachers--usually only one or two subjects)
2. Plans each day's classes

3. Talks with parents
4. Keeps records of each child's progress
5. Attends meetings, workshops, and conferences
6. Corrects students' papers and tests

Part 2

Educational Requirements:

Elementary-school Teachers

Most states require at least four years of college with a major in elementary education for a teaching certificate to teach grades 1 through 6.

Secondary-school Teachers

Most states require a bachelor's degree (four years of college) and certain education courses for a teaching certificate to teach grades 7 through 12. A master's degree (an additional year of college) is sometimes required.

Part 3

As you know, most elementary-school teachers teach several subjects. Junior- and senior-high teachers, however, usually teach only one or two subjects. While in college they study their subject in depth by taking many courses in their field.

Subjects taught by secondary-school teachers include the basic subjects of English, math, social studies, and science. Most high schools also offer classes in languages, such as French, German, Spanish, or Latin. Other popular classes are art, physical education, and music. In addition, many high schools offer home economics, which covers topics such as food, clothing, and household management; business subjects, such as typing and shorthand; industrial arts, where students learn to use tools to make things; and speech, where students learn to improve their speaking ability.

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TAPE SCRIPT

OCCUPATION: TEACHER--PART 1

Narrator = N
Mrs. Garcia = Mrs. G.
Mr. Johnson = Mr. J.

N: The following tape is based on interviews with teachers. Two teachers, Mrs. Garcia, a high school English teacher, and Mr. Johnson, a fifth-grade teacher, discuss their experiences as teachers.
Let's begin by talking about the work activities of a teacher. Let's start with you, Mrs. Garcia.

Mrs. G: Well, an important activity is planning the lessons. Most schools provide the textbooks and suggest topics to cover during the year, but the teacher must decide on what facts to emphasize and what methods to use in presenting the subject.

Mr. J: You know, when I was a student in school, I had no idea that there was so much involved in the teacher's preparation before he got into the classroom. Somehow I always thought that all the teacher really had to do was follow the textbook. Of course, now I find out that you have to make many of the decisions about what you are going to emphasize, what you want the students to learn, and what the best way is to learn it.

N: How do you go about planning a lesson?

Mrs. G: First, you should have a clear idea of what you want to teach and then you must decide how to go about teaching. There are many things to consider in deciding how to present your lesson. One is variety. If you do any activity day after day, it becomes routine. So a teacher should try to think of activities that will involve the students and interest them. You can remember how bored you got sometimes as a student, and how you liked to try something different.

Mr. J: And you have to consider the needs of the students in your particular class. Because of the different ability levels and different interests of the students, you should teach in different ways by varying the activities and materials. A lesson plan that works for some students may flop with other students.

N: How much time does a teacher have during the day to plan lessons?

Mr. J: An elementary teacher has very little time during the school day to plan lessons and must spend time after school or on weekends. I usually spend Sunday afternoons working on lesson plans for the next week.

Mrs. G: Usually high school teachers have one period off a day to prepare lessons. But often that time is spent in running off copies of tests or having conferences with students. Remember, too, that in high school it's common for a teacher to prepare for several classes. Teachers don't teach the same lesson to five different classes. Beginning teachers especially may have two or three classes that are different and that must be prepared separately each night.

Mr. J: But at least a high school teacher only teaches one or two subjects. An elementary teacher needs to be able to teach all subjects.

Mrs. G: I think one would have to honestly say that one of the drawbacks of going into teaching is the amount of time you have to spend outside of the classroom.

Mr. J: That's true. But I think the first one or two years are the hardest, and if you can get through the first few years, it doesn't take as much time outside of the class.

Mrs. G: Yes, but there is still a considerable amount of work for a teacher who wants to keep up with new developments. For example, in a field like social studies you would want to use current information and teach about recent events.

N: What else do teachers have to do in addition to planning lessons? How about you, Mr. Johnson?

Mr. J: In elementary school, there is a lot of paper correcting that has to be done almost daily.

Mrs. G: That's the case for high school too--for English and social studies, especially, where a lot of the student's work is in essay form. It takes a lot of time to correct essays if you try to make helpful comments so the student knows what he did well and what he could improve on. You could easily spend half an hour on a single essay. Multiply that by just one class of 30 students and then multiply that by four or five classes. You can see why many teachers can't spend as much time reading student essays as they would like.

Mr. J: Teachers also have professional responsibilities. Most teachers attend at least two or three days of workshops or conferences each year and many take additional college courses.

Mrs. G: In addition there are teachers' meetings after school, department meetings, and parent conferences.

Mr. J: I usually spend at least 15 minutes each morning taking attendance and collecting milk money and I frequently have lunch and yard duty. Sometimes these duties become a real chore, but on the other hand there are many things I enjoy about teaching. I enjoy being in the classroom, and I like the creative aspect of planning lessons and the contact with students.

TAPE SCRIPT

OCCUPATION: TEACHER--PART II

N: Mrs. Garcia and Mr. Johnson continue to discuss their experiences as teachers.
Well, let's go on to find out what kind of training you received to become a teacher. How about you, Mrs. Garcia?

Mrs. G: Where I went to college, those planning to be teachers had a major in their subject-matter specialty, such as science, math, or English, plus a major in education. I took courses in my major field, which was English, and completed them by the end of my third year. Then I took my education courses and student teaching in a high school the fourth year.

N: What kind of education courses did you take?

Mrs. G: I had courses in how students learn, methods of teaching and testing, one in audio-visual techniques, and one or two more. Probably my most valuable classroom course was the one that dealt with the subject I taught--in my case, the English course--and that covered what materials were available for students in this subject and how to plan a lesson.

Mr. J: For elementary-school teaching, some colleges require a minor in a subject, such as English, and a major in education. But some colleges require only a major in education. My courses dealt more with how young children learn and I had some additional courses such as school music and children's literature.

N: Did you feel these courses were valuable?

Mr. J: My own experience is that you should not judge teaching by the courses you take in college. I found real teaching to be more exciting than just learning about teaching.

Mrs. G: My education courses pointed out to me a lot of things I had never realized. I really believe enthusiasm is necessary for a good teacher, but it is not enough. A teacher needs to be organized and know how to deal with students. I don't think you automatically know these things. I had one education course that was very helpful. I taught a small group of students a 10-minute lesson, and a film was made of me while I taught. Afterwards I watched the film with my advisor and we talked about what I could improve on. But later I found it was much different teaching 5 students than teaching 30! It's much easier with a small group to adjust your lesson to the needs of the students.

Mr. J: Some colleges require education students to visit a school in the fall before their own college classes start and to observe for several weeks. I think it's a good idea to observe a class before you start your student teaching. For anyone who is considering teaching as a career, I think that observing may help him decide whether he wants to go into teaching. He should observe from the point of view that he may want to be the teacher and not that he is just sitting in someone's class waiting for the bell to ring.

Mrs. G: That's a good point. I would say that my student teaching was my most valuable educational experience. I can describe my student teaching experience to give you an idea of what I learned from it. I was assigned an experienced teacher to work with and I taught two of her classes for a semester. She watched me while I taught and then we discussed ways I could improve my teaching. I found the suggestions very helpful; many things I wouldn't have thought of by myself.

Mr. J: You know, I'm from a state where you only need to go to college four years to teach and I was surprised to learn that many states require a fifth year to qualify as a credentialed teacher in secondary schools. Some states require a fifth year for elementary-school teachers, too.

Mrs. G: Each state decides on its own educational requirements for a teaching credential, and the standards differ quite a bit among states. Some states require a person to take a test to qualify to teach.

Mr. J: Yes. Usually the college you graduate from will help you apply to the state for your teaching credential. And you should apply quite a bit ahead of the time you plan to teach. Then, if there is a special requirement, such as a test or an extra course, you will still have time to meet the requirements.

N: Are teachers paid very well?

Mr. J: Pay varies quite a bit from state to state and even within a state. Generally teachers are not overpaid and are probably not paid as much as some other workers with a college education. But teaching is a more secure job than many others, and you can't beat the vacation time!

Mrs. G: Length of teaching experience and education seem to be the common ways to increase your pay. Your pay usually increases as you gain more experience and if you take college courses in the summer or at night.

Mr. J: There aren't many chances for promotions within teaching. If you take additional college courses, there are opportunities to get other jobs, such as principal, superintendent, or counselor, but then you are no longer a teacher in the classroom.

N: Could you sum up for us how you feel about teaching as an occupation?

Mr. J: I would say that teaching is probably one of the most satisfying jobs in the world. You can really see the results of what you're doing. You can see your influence on the students, you can interact with people, and somehow it's all worth it when someone understands something you've been trying to get across or when you've made a subject interesting to a student. You can get a lot of rewards that are hard to find in most other jobs.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE

Sr. 207 (74)
IV-1

TEACHING OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Teaching and General Social Service group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. List five work duties of elementary-school and secondary-school teachers.
2. Identify how much education is usually required for an elementary-school teacher and for a secondary-school teacher.
3. Recognize 10 subjects that are commonly taught by secondary-school teachers.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

Of the following courses, the one most commonly taught by secondary-school teachers is:

a. philosophy

b. psychology

c. music

d. sociology

STUDENT DIRECTIONS:

_____1. Listen to the tape "Occupation: Teacher--Part I." Follow along in the tape script attached to the Student Information Sheet, "Teaching Occupations."

_____2. For practice in the on-the-job activities of a teacher use the Job Experience Kit "Elementary School Teacher." Read the booklet and follow the directions in it. Keep your completed answer sheet with this Student Guide.

_____3. How would you teach a lesson if you were a teacher? Here's your chance to try out your ideas by selecting a subject you are interested in and teaching a short lesson.

   a. First decide on a subject and write an objective explaining what you want to teach.

   b. Then plan how you will teach the objective. Perhaps you will want to make a short lecture, prepare a chart or poster, assign a short reading passage, or plan some other activity.

c. Finally, prepare a short test to see if the student learned what you wanted to teach him.

d. Discuss with your instructor your plans for teaching the lesson. At the end of your discussion, have your instructor put his initials in the box in front of this activity.

e. Now try out your lesson on a classmate. Afterwards, discuss the lesson together and try to suggest ways of improving the lesson. Also discuss the work duties of a teacher that you have learned about in this step.

_____4. List at least four common work activities of teachers in the spaces below. Check your answers with the list in Part 1 of the Student Information Sheet, "Teaching Occupations."

a. ______________________ e. ______________________

b. ______________________ f. ______________________

c. ______________________ g. ______________________

d. ______________________

_____5. Listen to the tape, "Occupation: Teacher--Part II." Follow along in the tape script attached to the Student Information Sheet, "Teaching Occupations."

_____6. Read Part 2 of the Student Information Sheet, "Teaching Occupations."

_____7. Write the answers to the following questions in the spaces below.

a. Each state decides on the requirements for a teaching certificate in that state. Using a dictionary, define the word certificate.

b. How many years of college are required in most states for an elementary-school teaching certificate?

c. How much education do most states require for a secondary-school teaching certificate?

a. ____

____

____

____

b. ____

c. ____

_____8. Find out from your instructor how much education is required for both elementary-school and secondary-school teachers in your state.

Elementary-school teacher__________________________

Secondary-school teacher___________________________

_____9. Read Part 3 of the student information sheet Teaching Occupations.

____10. List, in the spaces below, 10 subjects that are commonly taught by secondary-school teachers. Check your list with the subjects mentioned in Part 3 of the Student Information Sheet, "Teaching Occupations."

a. ____

b. ____

c. ____

d. ____

e. ____

f. ____

g. ____

h. ____

i. ____

j. ____

____11. When you have completed all the activities in this Student Guide you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your teacher or counselor. When you are ready, ask for a copy of the test.

ENRICHMENT:

From the following four tapes choose one or two and listen to them, and answer the following questions.

VG 708 -- "Counselor"
VG 730 -- "Social Worker"
VG 740 -- "Secondary Teacher"
VG 746 -- "Elementary Teacher"

1) What preparation is required?

Schooling--

Training--

2) What will the preparation cost?

What sources of financial aid are available to meet the cost involved?

3) What are the earnings?

Beginning--

Peak--

Lifetime--

TEST

TEACHING OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of these is a common work task of a secondary-school teacher?

   a. Teaching many different subjects

   b. Selecting the best college for each student

   c. Conducting research projects

   d. Planning lessons before teaching classes

2. Which of these is a common work task of a secondary-school teacher?

   a. Helping students find part-time jobs

   b. Teaching the same group of students all day

   c. Grading papers which students have written

   d. Operating the school cafeteria

3. Which of these is a common work activity of an elementary-school teacher?

   a. Running the school library

   b. Meeting with parents to discuss the progress of a student

   c. Teaching no more than two different subjects

   d. Deciding what subjects should be taught to all students in the school

4. In most states, the educational requirement for elementary school teachers is at least

   a. 2 years of high school.

   b. 4 years of high school.

   c. 2 years of college.

   d. 4 years of college.

5. In most states, the educational requirement for secondary-school teachers is at least

   a. 4 years of high school

   b. 2 years of college.

   c. 4 years of college

   d. 7 years of college

6. Of the following courses, the one most commonly taught by secondary-school teachers is

   a. philosophy

   b. speech.

   c. interior design

   d. business management

7. Of the following courses, the one most commonly taught by secondary-school teachers is

   a. engineering

   b. airplane mechanics

   c. industrial arts

   d. astronomy

8. Of the following courses, the one most commonly taught by secondary-school teachers is

a. accounting

b. library science

c. nursing

d. typing

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EXPLORING GOALS
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STUDENT INFORMATION SHEET

SOCIAL SERVICE OCCUPATIONS

Sr. 207 (74)
IV-2

TAPE SCRIPT

Occupation: Social Worker

N = Narrator
S = Social Worker (Voice of a young woman, pleasant)

N: The following tape is based on an interview with a young woman who has worked for four years with a county welfare department in the suburb of a large city. She describes her job as a social worker.

N: How would you describe your job as a social worker?

S: Social work is a variety of things depending on your particular job. I am a caseworker for the county welfare department which is a public government agency. What we generally do is family counseling. People usually come to us because they lack money and have some type of employment problem or some type of physical problem. We go into the home or have the clients come in to our office so that we can counsel them about their problems.

N: What is a typical day like for you?

S: In our department, we have telephone hours for the first hour and the last hour of the day, that is, from 8:00 to 9:00 and from 4:00 to 5:00. During this time, we are at our desks. People call in and we make our appointments. We generally spend three and a half days a week in the field, which involves going out into the communities to people's homes and talking to them.

N: Do most social workers see their clients in their homes?

S: Not necessarily. Most of the people who come to us are poor and don't have a car or other means of transportation to get to the office. But in private agencies, like family social services and social services sponsored by religious groups, the people generally come into the office to see the social worker. The social workers in hospitals and mental institutions talk with the people right there. But in public agencies, we often go out and visit the people in their homes.

N: What kinds of cases do you deal with?

S: I work mainly with people who are in the AID program, which is the Aid to the Totally Disabled Program. This means that the people have some sort of physical or mental handicap which prevents them from working. I also have some blind people in my case load and some general assistance clients that are temporary. When I go into a home, I usually find someone totally disabled. It could be someone in a wheelchair, someone with a psychiatric problem, or someone with a chronic illness. Many of my cases are single, middle-aged people who through various circumstances have lost their family, been divorced, or have been rejected by their family, and now can't work anymore. They can't get out of the house much--they can't afford to. So often when I go into homes, they are glad to have someone to talk with them.

N: Is there much you can do to help a severely disabled person?

S: It depends. Generally, when someone is on the disability program, chances are that he'll stay there unless he is young or has a handicap that can be helped with special treatment and a lot of motivation. In one family that I am working with, both the husband and wife have cerebral palsy. They are both severely disabled, but they are young and can do many things. The husband is going to school to learn to be an insurance salesman. He's passed most of his tests and a brokerage is sponsoring him. Now he is going to make it, you can tell. Another case I have is a fellow in his forties who is totally disabled by cerebral palsy. He has to have someone put a cigarette in his mouth. There is not really much we can do for him, but go and see that he is getting the care and medical attention that he needs and talk with him about his problems. Fortunately, he has some friends who come to see him and take him on short trips. They have a lift so he can go for rides in the car and he really looks forward to that. But sometimes you'll go into a home where the client has no family or friends. In that case, you try to work with the community resources to find out what is available. For example, there is a group called Fun after Fifty which sponsors activities for older folks. But perhaps the client is the kind of person who is not social and would rather not get involved in activities. The needs of the client have to be considered first.

N: What are your general assistance cases like?

S: The general assistant clients are not damaged enough physically to qualify as totally disabled, but they are considered unemployable. For example, there was a waitress who came to me with a broken leg. Many of these clients are alcoholics who can't hang on to their job. They usually stay on general assistance for a few months and then get a job. But often they start drinking again, lose their job, and come back to us. Unfortunately, our services for helping alcoholics are very limited. I had one client who was a former airline pilot. He became ill and spent all his savings on medical expenses. The hospital referred him to our agency and we tried to place him in a job. But most of the jobs were for unskilled work, and nobody wanted to hire him because he would be underemployed with his background. He's become very depressed and drinks heavily now and still hasn't found a job. But I had another young man who came to us when he was eighteen and on probation. We placed him in our general education program where he brushed up on arithmetic and other basic subjects and then placed him in an electronics class. It wasn't long before he got a good job with an electronics company.

N: Do you have many training programs in which you can place the people who come to you?

S: We do have training programs, but they are very limited. In this county, we have a workshop where we place many clients who we hope will be able to get and hold a job. The workshop has contracts with local companies, such as a contract with a soft drink company to repair the boxes, and a contract with a company that makes swimming pools. The workshop gives the people practice at a regular job and a chance to learn good work habits. We are able to send some of them on to our electronics program which is excellent. About 80% to 90% get hired after training in the electronics program. We also have a training program for nurse's aides and orderlies, but we could use more and better training programs.

N: What are some of the ways that you try to help people with their financial problems?

S: It's difficult to help very much. The cost of living in this area is very high and the grants of money people receive are based on the average cost of living in the state. We do have a food stamp program, which helps, but it is very difficult to live on a welfare check and especially difficult to find low-cost housing.

N: How do your clients feel about needing financial assistance?

S: I don't know of anyone who is really proud of being on welfare. Many of my cases are people who worked for many years but didn't have enough money for an emergency or who didn't have a retirement program. Several of the people have suffered severe strokes or heart attacks which keep them from working.

N: What other duties does a social worker have?

S: We have a lot of paper work. We have to keep a running account of our clients' probelms and what we're doing to help them. Of course, this information is confidential, but we do have to keep a record of it. Right now we have to go out and investigate our clients financially, which also involves a lot of paper work. I have a few clients that are on the Aid to Dependent Children Program which becomes very complicated because there are so many restrictions and regulations in the program. I have several clients who work part time. One lady with a severe heart condition teaches part time, one client is a realtor, and one works in a paint store. This makes it more complicated to figure out their financial status. Of course, how much money they earn is really their own personal business. But yet, they need the financial assistance, and you need to find out this information to give them aid.

N: What education background would be most helpful for a social worker?

S: You can get a job as a social worker with a four-year college degree, although it is becoming increasingly difficult and you are often limited to working in a government agency like the welfare department. I got my job with a college degree in psychology after taking a written and oral test. But even with my present experience, I don't qualify for many social-work jobs and I have little chance for promotion until I return to school. But social workers with a master's degree in social work, which usually takes two additional years of college, are in great demand. With a master's degree, you are eligible for a wide range of jobs and can work in a private agency, a mental hospital, a regular medical hospital, a school, and in a variety of other work settings. Many people with master's degrees go on to work in administrative positions.

N: Is being a social worker a tiring job?

S: Well, physically, no. But it is emotionally draining. You can't help but get involved with people and their problems, and you really have to be involved to a certain extent to help at all. You have to like people and want to help them. But maybe in one day you'll see several clients with serious problems with their family and their finances, and often you don't feel that there is very much you can do to help them. You can't help but get a little discouraged sometimes. But it is satisfying to feel that you're trying to help others. I guess that's why I like my job and why I plan to stick with it and go back to school to get my master's in social work.

N: Well, thank you for the interview. I've learned a lot about the job of a case worker from our conversation.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207(74)
IV-2

SOCIAL SERVICE OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the General Teaching and Social Service group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit, you should be able to:

1. Recognize the typical work duties of a social worker.
2. Describe the employment opportunities for social workers.
3. Describe the amount of education required for Protestant clergymen, Roman Catholic priests, and rabbis.
4. Identify the amount of education required for social workers.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

1. Which of the statements below describes a common work activity of a social worker?
    a. Planning or developing health, welfare, and recreational services for a neighborhood
    b. Advising people of their legal rights and obligations and representing them in court
    c. Studying the origin and behavior of social groups
    d. Developing techniques for selecting and training workers

STUDENT DIRECTIONS:

_____1. Read the first paragraph in the section on "Social Workers" on p. 193 of Occupations and Careers.

_____2. Listen to the tape, "Occupation: Social Worker," to learn about the work duties of a caseworker. Follow along in the tape script provided in the student information booklet,"Social Service Occupations."

_____3. Optional: List some volunteer activities or part-time work available in your area for students who want to obtain experience that would be related to social work. Your instructor, or some other adult should be able to help you with this activity. If you would like to get more information about how you can obtain experience related to the field of social work, make a plan for contacting one or more of the sources on your list and carry out your plan.

3. ____

____

____

____

_____4. Read the second paragraph in the section on "Social Workers" on p. 193 in Occupations and Careers. Check the chart on p. 200 to find out about the educational requirements and employment outlook for social workers.

_____5. Write a sentence or two explaining the educational requirements and employment opportunities for social workers. Check your answer with your readings.

a. Educational requirements: ____________________

____

____

b. Employment opportunities: ____________________

____

____

_____6. Listen to the tape VG 730 --"Social Worker" and answer the following questions:

1. What does the worker in this occupation do?

____

____

2. Is the occupation growing or declining? ____________

3. What are the opportunities for advancement? ________

____

_____7. Read the section on "Clergymen" on pp. 181-183 of Occupations and careers.

_____8. Make a chart in the space on the following page listing the main work duties and the amount of education required for Protestant clergymen, Roman Catholic priests, and rabbis.

a. Main work duties:	b. Educational requirements

_____9. Write a sentence or two summarizing both what the three types of clergy have in common and how they are different.

_____10. You have just learned about the occupations of social worker, Protestant clergyman, Roman Catholic priest, and rabbi. Remember that these occupations are examples of some of the occupations included in LRG IV: GENERAL TEACHING AND SOCIAL SERVICE.

_____11. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to the tape VG 708 -- Counselor and answer the following questions.

1. What are the legal requirements for entering the occupation?
2. How much schooling and/or training is required?
3. What personal abilities are required?

TEST

SOCIAL SERVICE OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following types of problems would a person be most likely to bring to a social worker?

   a. A severe medical problem

   b. A severe psychological problem

   c. A family or personal problem

   d. A legal problem

2. Which of the following is a common work duty of a social worker?

   a. Interviewing and hiring job applicants

   b. Teaching a high-school class in home management

   c. Visiting a family that has been having financial problems

   d. Prescribing medicine for people with health problems

3. Of the following, which is a common work activity of a social worker?

   a. Helping students apply for college

   b. Giving nursing care to patients in their homes

   c. Collecting and analyzing information on social trends

   d. Planning community recreational services

4. What is the minimum amount of education usually required to become a social worker?

   a. Two years of college

   b. Bachelor's Degree

   c. Master's Degree

   d. Doctoral Degree

5. Which of the following best describes the employment opportunities for social workers?

   a. Opportunities are best for people with Bachelor's Degrees in social work

   b. Opportunities are best for people with Master's Degrees in social work

   c. Opportunities are usually worst in heavily populated areas of the country

   d. Opportunities are usually best in rural areas of the country

6. Many Protestant denominations require professional training for their clergymen. How many years of education beyond high school usually are necessary?

   a. Two years

   b. Four years

   c. Six years

   d. Seven or more years

7. How many years of education beyond high school are usually required for Roman Catholic priests?

   a. Two years

   b. Four years

   c. Six years

   d. Seven or more years

8. How many years of education beyond high school are usually required for a Jewish rabbi?

   a. Two years

   b. Four years

   c. Six years

   d. Seven or more years

EXPLORING GOALS
MINI ~ PAC

Sr.207(74)
V

STUDENT INFORMATION SHEET

OCCUPATIONS IN LAW, THE HUMANITIES, AND THE SOCIAL SCIENCES

Part 1

The humanities include the study of literature, language, and philosophy. Workers in the humanities are primarily interested in the products created by men's minds. People who study literature often learn about the prose or poetry of one period in history, of one author or poet, or of one geographic region. They often compare different books, figure out the meaning of them, tell how they are tied in with the time and place in which they were written, or look into how good they are.

The study of language usually involves learning to speak and write in a foreign tongue. Often the customs, history, and literature of the country are studied, also.

Philosophers are interested in how human beings think and conduct their lives. They study and develop theories to explain the principles or laws that regulate the universe. Philosophers study subjects such as aesthetics (beauty), ethics (morals), logic (systems of correct reasoning), and metaphysics (explanation of the nature of being or reality, and the origin and structure of the world).

Most of the people who work in the area of the humanities are faculty members of a college or university. Besides teaching, their work often includes doing research and writing about their ideas for publication.

Part 2

All the social sciences deal with the social aspects of man's life. To get together, men develop rules and laws which reflect their customs and values. Lawyers are concerned with the laws that govern our society and with the ways these laws apply in particular cases. If you've ever read an insurance policy, a detailed legal contract, or even the booklet explaining the driving laws of your state, you know that laws can be complicated. Because laws are often complicated, people turn to lawyers for advice and help in legal affairs.

There are many different types of lawyers. Some lawyers are in general practice and may have a wide variety of duties such as drawing up a will, negotiating a personal injury claim, filing for a small business, or handling a divorce case. Others specialize in a particular area such as corporation, criminal, or tax law. Many lawyers have a private practice or work for a law firm, while others work for the government, for corporations, or at universities. There are some "Perry Mason" type lawyers who hire detectives, skillfully grill witnesses, and always seem to prove their clients' innocence--but very few. The average lawyer spends little time in court. He spends most of his time drawing up legal papers and doing research in law books.

A lawyer must be a clear thinker with a thorough background in law. When a lawyer handles a case, he first finds out all the facts that are relevant to the case, locates laws in law books that relate to the case, and applies the law in a way that will help his client. Becoming a good lawyer takes years of practice. A beginning lawyer may rarely see a client or argue a case in court. Often he will research points of law and write reports and gradually be given more responsibility.

Answers to Activity 2 in the Student Guide.

5 political science

2 economics

7 sociology

6 psychology

3 geography

1 anthropology

4 history

EXPLORING GOALS
MINI ~ PAC

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V

OCCUPATIONS IN LAW, THE HUMANITIES, AND THE SOCIAL SCIENCES

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Humanities, Law, and Social and Behavioral Sciences group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit, you should be able to:

1. Identify the field of study of the following social sciences: anthropology, economics, geography, history, political science, psychology, and sociology.
2. Identify the fields of study included in the humanities.
3. Identify the work tasks that would most likely be done by each of these social scientists: anthropologist, economist, geographer, historian, political scientist, psychologist, and sociologist.
4. Identify the typical work tasks of librarians.
5. Describe employment opportunities for librarians.
6. Recognize the amount of education required to become a lawyer.
7. Identify the major types of problems with which lawyers typically assist clients.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

1. The field of study in the social sciences, that is mainly concerned with the description and interpretation of the events of the past and present, is

   a. History

   b. Geography

   c. Political Science

   d. Psychology

STUDENT DIRECTIONS:

_____1. Read the section on"Social Science Occupations" on p. 175 of Occupations and Careers.

_____2. Match each social science listed in the lefthand column below with the description of its field of study listed in the righthand column. Place the number of the appropriate description in the blank in front of each social science. Check your answers with the answer sheet attached to the student information sheet, "OCCUPATIONS IN LAW, THE HUMANITIES, AND THE SOCIAL SCIENCES."

Social Sciences

__ political science

__ economics

__ sociology

__ Psychology

__ geography

__ anthropology

__ history

Descriptions of Fields of Study

1. concerned with primitive tribes, cultures, and languages, and finding out about civilizations of the past
2. concerned with how man uses the resources of labor, land, and capital
3. concerned with the distribution throughout the world of people, types of land, water, and natural resources
4. concerned with the description and interpretation of the events of the past and present
5. concerned with the theories and organization of various types of government
6. concerned with the behavior of individuals and sometimes with helping them achieve satisfactory personal adjustments
7. concerned with the behavior and relationships of groups to society

_____3. Read Part 1 of the Student Information Sheet, "Occupations in Law, the Humanities, and the Social Sciences."

_____4. Write a sentence or two in the spaces provided describing what is studied in each branch of the humanities. Check your answers in Part 1 of the Student Information Sheet, "Occupations in Law, the Humanities, and the Social Sciences."

Literature ____

____

____

Language ____

____

____

Philosophy____

____

____

_____5. Listen to tape VG 713 -- "Lawyer" and answer the following questions.

1. How much preparation is required?

   Schooling--

   Cost--

2. What are the usual working conditions?

   Hours--

   Days--

3. Do you need a license or certificate? ______________

4. Must you belong to a union or professional society?

_____6. Read pp. 176-180 through the section on "Sociologist" in Occupations and Careers.

_____7. The majority of the people in the social sciences and the humanities work at colleges or universities where they teach and often do research. These jobs usually require a Ph.D. degree, which takes at least 7 years of college and university study. Read the section on "College and University Teachers" on p. 149 of Occupations and Careers.

_____8. Look at the chart on p. 179 in Occupations and Careers to learn the educational requirements and employment outlook for workers in the social sciences. Also look at the chart on p. 152 in Occupations and Careers under "College or University Teacher" to find out the same information for these workers. Circle the word in the sentence below that makes it an accurate statement.

Generally, employment opportunities for social scientists

with graduate degrees are favorable .
unfavorable

_____9. Optional: Select one of the social sciences or one of the humanities and ask a teacher who teaches a subject related to the field of study you selected to tell you about the different kinds of work opportunities in this field.

____10. Read the section on "Librarians" on pp. 151-153 in Occupations and Careers. Also review the chart on p. 152 under "Librarian."

____11. You have just read about what librarians do. To practice some of their on-the-job activities, use the Job Experience Kit "Librarian." Read the booklet in the kit and follow the directions in it. Keep your completed answer sheet with this Student Guide.

____12. Read Part 2 of the Student Information Sheet, "Occupations in Law, the Humanities, and the Social Sciences."

____13. Read the section on "Lawyers"on pp. 183 and 184 of Occupations and Careers.

____14. You have just read about what lawyers do. To practice some of their on-the-job activities, use the Job E Experience Kit "Lawyer." Read the booklet in the kit and follow the directions in it. Keep your completed answer sheet with this Student Guide.

____15. Optional: Interview a lawyer about his job. Find out what types of legal problems he works on and how he spends a typical day.

____16. You have just learned about jobs in the humanities and the social sciences and about the occupations of lawyer and librarian. Remember that these occupations are examples of some of the occupations included in LRG V: HUMANITIES, LAW, SOCIAL AND BEHAVIORAL SCIENCES.

____17. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to tape VG 714 --"Librarian"and answer the following questions.

1. What does a librarian do?

2. What hours, days, working conditions does a librarian have?

3. What are the earnings?
Beginning--
Peak --

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V

TEST

OCCUPATIONS IN LAW, THE HUMANITIES, AND THE SOCIAL SCIENCES

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. A government employee studying the problem of race relations in the United States is most likely to be

   a. a geographer.

   b. a sociologist.

   c. a political scientist.

   d. an economist.

2. A woman scientist named Iris Love has recently rediscovered and excavated the Greek Temple of Aphrodite in Turkey. She is

   a. an historian.

   b. a sociologist.

   c. an anthropologist

   a d. a geographer.

3. Improving the way Congressmen make laws would be of greatest concern to

   a. economists.

   b. sociologists.

   c. historians.

   d. political scientists.

4. The United States is considering building new cities in thinly populated areas, instead of letting existing cities grow larger. Of the following, which would be asked for advice about the best locations for these cities?

   a. an historian

   b. a geographer

   c. a psychologist

   d. an anthropologist

5. A course titled "Structures and Functions of Communist Governments" would most likely be offered by which of the college departments listed below?

   a. geography

   b. sociology

   c. political science

   d. psychology

6. A government employee hired to find ways to prevent depression and inflation is most likely to be

   a. an economist.

   b. an historian.

   c. a political scientist.

   d. a sociologist.

7. Of the following, which is concerned with the distribution throughout the world of people, types of land, water, and natural resources?

   a. economics

   b. political science

   c. anthropology

   d. geography

8. Of the following fields, which has two main divisions: physical and cultural?

   a. history

   b. anthropology

   c. economics

   d. political science

9. The terms "counseling," "school," "social," "educational," and "clinical" describe different branches of

   a. psychology.

   b. sociology.

   c. history.

   d. anthropology.

10. The original copies of the Declaration of Independence and the Constitution of the United States are kept in an archive. The person who cares for the documents in an archive is called an archivist. An archivist is a type of

    a. political scientist.

    b. sociologist.

    c. economist.

    d. historian.

11. A child with a head injury is given mental tests to find out whether he is mentally damaged. These tests are probably given by

    a. an anthropologist.

    b. a political scientist.

    c. a psychologist.

    d. a sociologist.

12. The ancient peoples of India had a sacred drink called "soma", made from some kind of plant. After a study of their sacred writings, a social scientist announces that this plant was probably a mushroom. He has come to this conclusion by using the methods of

   a. an historian.

   b. an anthropologist.

   c. a geographer.

   d. a sociologist.

13. In which of the following courses do students learn how man uses the resources of labor, land, and capital?

   a. political science

   b. psychology

   c. economics

   d. geography

14. The behavior of criminal groups is studied by specialists in which of the fields of study listed below?

   a. psychology

   b. political science

   c. anthropology

   d. sociology

15. The humanities include the study of

   a. speech, drama, and music

   b. political science, economics, and history

   c. literature, language, and philosophy

   d. English, religion, and art

16. Usually, the work tasks of a librarian include

    a. helping people locate the information they need.

    b. selecting, organizing, classifying and cataloging books.

    c. reviewing and abstracting publications.

    d. all of the above.

17. Employment opportunities for librarians with four years of college and one year of study in library science are expected to be

    a. poor.

    b. fair.

    c. good.

    d. excellent.

18. How much education beyond high school does it usually take to become a lawyer?

    a. two years of college and three years of law school

    b. three years of college and four years of law school

    c. four years of college and three years of law school

    d. four years of college and four years of law school

19. Of the following, which is a common work task of a lawyer?

    a. deciding whether a person is guilty of breaking a law

    b. representing a client in court

    c. determining what punishment a guilty person should receive

    d. deciding which laws will be enforced

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207(74)
VI

PERFORMING ARTS OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Fine Arts, Performing Arts group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit, you should be able to:

1. Describe the employment opportunities for actors, actresses, and dancers.
2. Compare the employment opportunities in music teaching with those in music performance.
3. Describe the major ways that individuals can prepare for a career as a singer or as a singing teacher.
4. Identify the major ways to prepare for occupations in acting or dancing.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

1. Which of the following phrases describes a way that classical singers prepare for their careers?
    a. Attending a music conservatory
    b. Singing in front of a mirror every morning
    c. Attending concerts
    d. Forming a group of folk singers

STUDENT DIRECTIONS:

_____1. Read about "Entertainment and Recreation Occupations" from p. 184 through the first column on p. 186 in Occupations and Careers.

_____2. In a few sentences in the space below, briefly explain the ways actors, actresses and dancers can prepare for their occupations. Check your answer in Occupations and Careers.

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____

_____3. Arrange to discuss the employment opportunities for actors and actresses with the drama teacher at your school ar another adult who is familiar with the theater.

Find out from him what opportunities there are in your area to get experience in acting. For example, school plays, summer theater workshops, or acting schools could provide an opportunity for acting experience.

_____4. Optional: Interview a dancing instructor about the employment opportunities in dance.

_____5. Briefly describe, in the space below, the employment opportunities for actors, actresses, and dancers.

____

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____

____

_____6. Read "Dancer" and "Musical Theater Performer" in Careers for the Seventies by the editors of The National Observer, Dow Jones Books, Princeton, New Jersey, 1969.

_____7. Read the section on "Musician and Music Teachers" on pp. 186 and 187 in Occupations and Careers.

_____8. Discuss with the instrumental music teacher at your school the opportunities for employment in music occupations.

_____9. Read "Musician" in Careers for the Seventies.

_____10. In a sentence or two, compare the employment opportunities in music teaching with those in music performance. Check your answer in Occupations and Careers.

____

____

____

____

_____11. Read p. 187, the section on "Singers and Singing Teachers," in Occupations and Careers.

_____12. List three ways singers of classical music may prepare for their careers. Check your answer in Occupations and Careers.

a. ____

b. ____

c. ____

____13. Explain how the training of elementary and secondary school music teachers and that of popular singers differs from the training of singers of classical music.

____

____

____

____

____14. Talk with your music teacher about the employment opportunities in singing.

____15. Read "Popular Singer" in Careers for the Seventies.

____16. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

TEST

PERFORMING ARTS OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following statements best describes the nature of employment opportunities for actors and actresses?

   a. There will not be enough performers to fill the available positions.

   b. The opportunities in acting are very good because of the increasing number of local theaters.

   c. A person with talent has an excellent opportunity for a successful career in acting.

   d. There will be many more qualified performers seeking work than there are job openings.

2. The employment opportunities for dancers are:

   a. excellent.

   b. good.

   c. fair.

   d. poor.

3. Which of the following would probably be the best way to start preparing for a career in acting?

   a. Perform in a high school play

   b. Read many plays

   c. Study good actors while they perform

   d. Watch live theater performances

4. Dancers usually prepare for their work by
   - a. studying folk dance in high school.
   - b. performing in dance reviews for their parents.
   - c. beginning serious training when they are young children.
   - d. studying dance in college

5. The opportunities for jobs in music performance are
   - a. very good for popular musicians.
   - b. good for both popular and classical musicians.
   - c. fair in most parts of the country.
   - d. poor because of the stiff competition for jobs.

6. Compared to the number of job openings for music performers, the number of job openings for music teachers is
   - a. much higher.
   - b. a little higher.
   - c. about the same.
   - d. much lower.

7. The educational requirements for an elementary or secondary school music teacher is at least
   - a. high school graduation.
   - b. a degree from a junior college.
   - c. a bachelor's degree with a major in music education.
   - d. graduation from a music conservatory.

8. Which of the following is not a major way that classical singers prepare for their careers?

   a. Taking private voice lessons

   b. Training on their own without lessons

   c. Attending a music conservatory

   d. Enrolling in a college music department

9. To become a successful popular singer, formal voice training is

   a. required

   b. recommended but not a requirement.

   c. of no use at all.

   d. a handicap.

EXPLORING GOALS
MINI ~ PAC

STUDENT INFORMATION SHEET

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VII-I

TECHNICAL OCCUPATIONS

High school courses in math and science are helpful for most technical jobs. After high school, the necessary one to three years of training may be obtained in technical institutes, junior colleges, vocational schools, some four-year colleges, the armed services, and on-the-job training. The training emphasizes practical applications of science and mathematics and familiarity with the equipment and methods of particular technical fields. Technical occupations offer excellent job opportunities as described in the September 1971 Associated Press newspaper report reprinted below.

JOBS GOING BEGGING; TECHNICIANS SOUGHT

WASHINGTON (AP)--About 6.1 percent of the nation's work force is unemployed, but many blue-collar and other jobs requiring a broad range of technical skills are going begging.

Welders are in critical demand in Georgia while policemen registered nurses and physical therapists are needed in California.

In Boston, Carl W. Nickerson says his placement office has 162 unfilled positions available with no one to take them.

"We've got some jobs we can't fill, especially for welders and machinists," says an employment official in Dallas.

Elsewhere, an Associated Press survey shows, the story's the same: Wanted--people with technical skills.

LESS THEORY

"There is a demand for people with more technical and less theoretical backgrounds," says Prof. Hollis Baird, director of Lincoln College in Boston. "The job situation is much better for those graduates with associate degrees than those with a B.S. (bachelor of science) or M.S. (master's).

Associate degrees are awarded upon completion of programs taking less than four years to complete.

A number of programs, especially at technical and vocational schools, are designed to prepare students for immediate employment in specialized positions from just below the professional level to those requiring very limited specialized training beyond the high school level.

But during the past decade America's high school graduates flocked in even larger numbers to the nation's liberal arts colleges. Educators point to several reasons for the trend, including draft deferments and parental pressure

OVERSUPPLY

In 1970, more than one million persons received bachelor's, master's or doctorate degrees. This factor, coupled with others such as cutbacks in the aerospace industry, has resulted in an oversupply in college-trained personnel in several fields.

"This year's seniors faced the toughest employment market in years," according to the College Placement Council. "Employers across the country are hiring 26 per cent fewer seniors and graduate students than last year, an off year in itself," the council says in a statement.

The American Association of State Colleges and Universities reports "significant decreases in the numbers of students with registered education majors" and attributes the drop largely to the job shortage. The association estimates 100,000 educators had to look outside the profession this past year for employment.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207 (74)
VII-1

TECHNICAL OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Technical Occupations group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following occupations are included in the group of Technical Occupations: medical technologist, medical X-ray technician, dental hygienist, dental-laboratory technician, and life-science technician.
2. Describe how much and what kind of education is generally required for technical occupations.
3. Describe the main work tasks of the following health service technicians: medical technologist, medical x-ray technician, dental hygienist, and dental-laboratory technician.
4. List three major areas in which life-science technicians specialize.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

1. Which of the following phrases lists a problem on which a life-science technician might work?

   a. improving soil conditions and farm products

   b. analyzing chemical compounds to discover their component elements

   c. analyzing force fields around the earth

   d. building a scale model of a suspension bridge

STUDENT DIRECTIONS:

_____1. Read the information on "Technical Occupations" on pp. 146 and 147 of Occupations and Careers. Be sure to note the difference between technical occupations and professional occupations.

_____2. Read the Student Information Sheet, Technical Occupations."

_____3. Read the section on "Technical Institutes" and "Junior Colleges" on p. 65 of Occupations and Careers.

_____4. Briefly answer the following questions.

   a. What is the difference between professional occupations and technical occupations.

   ____

b. How much training is required for most technical occupations?

c. How can a person receive training for a technical job? List several ways.

d. How do the training programs in technical institutes differ from the programs in most colleges?

Check your answers with your reading.

_____5. Read the section that covers technical jobs in medicine and dentistry. It begins with the last sentence of p. 157 in Occupations and Careers and ends on p. 159.

_____6. You have read about what is done by some technicians in medicine and dentistry. To practice some of their on-the-job activities use one or both of the Job Experience Kits "Medical Technologist" and "X-ray Technician." Read the booklet(s) and follow the directions. Keep your completed answer sheet(s) with this Student Guide.

_____7. Read the section on "Life-science Technicians" on page 196 of Occupations and Careers.

_____8. In the spaces below, list the three major areas in which life-science technicians specialize. Under each area, list several problems the technician might help to solve on his job. Check your list with your reading in activity 7.

1. ____

____

____

2. ____

____

____

3. ____

____

____

_____9. You have just learned about the occupations of medical technologist, medical x-ray technician, dental hygienist, dental-laboratory technician, and life-science technician. Remember that all these occupations are included in Long-Range Goal (LRG) group VII: TECHNICAL JOBS.

____10. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to any of the following tapes and answer the questions.

VG 706 -- "Commercial Photographer"
VG 709 -- "Draftsman"
VG 711 -- "Programmer"
VG 715 -- "Medical Technician"
VG 717 -- "Medical X-ray Technician"
VG 733 -- "Technical Writer"
VG 735 -- "Dental Technician"
VG 745 -- "Electronic Technician"

1. Is the occupation growing or declining?

2. What personal or physical characteristics are required for this work?

3. Is the work regular or seasonal?

4. What are the earnings?

Beginning--

Peak--

Lifetime--

TEST

TECHNICAL OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following occupations is included in the group of Technical Occupations?

   a. Pharmacist

   b. Doctor

   c. Medical technologist

   d. Veterinarian

2. Which of the following occupations is included in the group of Technical Occupations?

   a. Dentist

   b. Dental hygienist

   c. Oral surgeon

   d. Optometrist

3. One difference between technical and professional occupations is that

   a. professional workers usually assist technicians.

   b. technicians usually earn more than professional workers.

   c. professional occupations usually require more education.

   d. technical occupations usually require more education.

4. The amount of education generally required for most technical occupations is

   a. four years of high school.

   b. one to three years of training after high school.

   c. four years of college.

   d. five years in an apprenticeship program.

5. The training for most technical occupations emphasizes

   a. a broad background in many subjects.

   b. intensive study in reading and writing.

   c. a theoretical study of math and science.

   d. practical applications of math and science.

6. Which of the following is a typical work task of a medical technologist?

   a. Performance of tests to assist scientists in early diagnosis of diseases

   b. Assisting a surgeon at the operating table during an operation

   c. Taking X-ray pictures of parts of the body

   d. Combining ingredients to form pills

7. Which of the following is a common work task of a dental hygienist?

   a. Examining teeth for decay

   b. Filling a cavity

   c. Cleaning teeth

   d. Making false teeth

8. Which of the following is a common work task of a dental-laboratory technician?

   a. Assisting a dentist as he works

   b. Sterilizing instruments and preparing solutions for a dentist

   c. Taking and developing X-ray pictures of teeth

   d. Making artificial teeth for patients

9. Which of the following technicians is not a life-science technician?

   a. Agricultural technician

   b. Biological technician

   c. Engineering technician

   d. Medical technician

10. Which of the following technicians would assist doctors, dentists, and other life-scientists in research aimed at understanding diseases and improving health?

    a. Medical technician

    b. Medical technologist

    c. Dental hygienist

    d. Biological technician

11. Which of the following is a common task of a biological technician?

    a. Studying the composition of rock samples

    b. Searching for oil or mineral deposits

    c. Interpreting weather information to make forecasts

    d. Assisting in developing new varieties of plants.

EXPLORING GOALS
MINI ~ PAC

STUDENT INFORMATION SHEET

TECHNICAL OCCUPATIONS

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VII-2

Part 1

With the rapid expansion of scientific knowledge, more and more skilled technicians are needed in engineering, chemisty and physics. Usually a technician's main responsibility is to carry out the details of projects that are planned by engineers and scientists. A technician's job is usually more limited than the job of an engineer or scientist and requires less training. But the term "technician" is used to refer to a wide variety of jobs. There is often no clear line between the job of an engineer or scientist and the job of a technician and there is no clear line between the job of a technician and the job of a skilled craftsman. Some technicians do work almost as complex as that of an engineer; others may be assigned jobs usually done by craftsmen.

The work tasks of a technician usually involve a lot of doing--in the laboratory, factory, field, or other locations--as the technician combines practical skills in his field with a general knowledge of the principles of science or engineering. For example, a chemical technician might help a chemist conduct laboratory experiements. The technician would set up the equipment, prepare the samples, and record the results of the experiment. A mechanical technician might conduct tests on an engine to measure its performance, efficiency, and durability and then report the results to an engineer. Other technicians perform a wide variety of tasks, depending on their particular job.

Part 2

Photographers combine technical skill and artistic ability in taking pictures. To achieve the desired effects in his photographs, a good photographer needs a thorough knowledge of his equipment, his film, the lighting, and the developing process. The following will give you an introduction to some of the basic technical aspects of taking pictures.

a. Check out an encyclopedia or an introductory book on photography from your school's library. Find a drawing of a camera which has the parts labeled. Identify the following parts of the camera: light proof box, lens, shutter release button, film advancer, and viewer.

b. When you press the shutter release button on a camera, the shutter opens and light comes into the camera through a small opening--the aperture. The lens bends the light and causes it to fall on the film, forming the image which becomes your picture. The exposure, which is the total amount of light that reaches the film, is important in taking pictures. The amount of exposure depends on

   1. the light conditions (sunny, cloudy, etc.),
   2. the kind of film you use,
   3. the size of the aperture, and
   4. the speed of the shutter

   Some cameras have fixed controls set for average conditions, but other cameras have adjustable controls which can change the size of the aperture and the speed of the shutter. Experienced photographers know how to adjust their cameras to obtain the desired exposure.

c. The size of the camera's aperture affects the exposure. On an adjustable camera, you can make the aperture smaller or larger. The samller the aperture, the less light can enter the camera. The larger the aperture, the more light enters the camera. The various sizes of aperture are called f-stops and appear as f-numbers on a scale on a knob on the camera. The f-numbers most used are 2, 2.8, 4, 5.6, 8, 11, 16, and 22. The larger the number the less light enters the camera.

Question 1: If your camera is set at f/16 and you want to increase the amount of light which reaches the film, would you change the f-number to f/11 or f/22? Answer this question on your Student Guide.

d. The exposure also depends on how long the shutter is open. The longer the shutter stays open, the more light enters the camera. Shutter speeds usually range from B to 1/500 of a second. If you set the knob at 60, the shutter will be open 1/60 of a second. The higher the number on the scale, the faster the shutter and the less light that reaches the film. Shutter speed is also important because it can help keep a picture from blurring if the subject is moving. A fast shutter can stop action.

Question 2: Your shutter speed is set at 50. If you want to increase the shutter speed would you set the knob at 30 or 250? Answer this question on your Student Guide.

e. To obtain the correct exposure, you should balance the f stop and the shutter speed, depending on the lighting conditions. On a cloudy day, you would use a fairly large aperture and slow shutter speed so enough light will reach the film to make an image. In very bright sunlight, you would use a small aperture and fast shutter speed to prevent too much light from reaching the film. Many cameras have built in light meters which automatically change the speed of the shutter and the f-stop. Many guides are available which, when set for the appropriate film type and lighting conditions, indicate the appropriate range of shutter speeds and f stops.

f. Remember that the total light which reaches the film depends on both the size of the aperture and the speed of the shutter. You can have the same amount of total light reach the film if you increase the size of the aperture as you decrease the speed of the shutter. All of the three combinations of settings listed on the following page will give about the same exposures.

	Combinations		
Time (seconds)	1/8	1/60	1/25
Light (aperture)	f/32	f/11	f/8

Question 3: Based on lighting conditions and your film, you have set your camera at 1/60 and f/11 for pictures of objects that are not moving. Now you want to take a picture of a friend riding a bicycle. Which of the above setting combinations would you use? Answer this question on your Student Guide.

g. Most cameras hsve some means of focusing to give you a sharp image of the subject. On some cameras, you set a dial to indicate the estimated distance between the subject and the camera. With some other cameras, you adjust a dial until you see a clear picture in the viewfinder.

h. To learn more about photography, you could read articles or books on the subject, talk to an adult whose hobby is photography, or enroll in a photography class.

ANSWERS TO QUESTIONS 1, 2, AND 3

1. f/11, because that would increase the amount of light which reaches the film
2. 250, because that would result in the shutter being open only 1/250 of a second.
3. f/8 and 125.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207(74)
VII-2

TECHNICAL OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Technical Occupations group of Long-Range Vocational Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following occupations are included in the group of Technical Occupations: draftsmen, engineering and physical-science technicians, computer programmers, and photographers.
2. Describe the difference between the work done by engineering and physical-science technicians and the work done by engineers and scientists.
3. Describe the main duties of a draftsman.
4. Describe the main work tasks and employment opportunities of computer programmers.
5. Describe several main work tasks of photographers.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

1. Which of the following phrases describes a task that most photographers would do on-the-job?
   - a. Decide which film, lens, and camera to use
   - b. Enlarge prints
   - c. Photograph news events
   - d. Adjust lighting equipment to achieve desired results

STUDENT DIRECTIONS:

_____1. Read the sections on "Technicians" on p. 195 and "Engineering and Physical-Science Technicians" on p. 196 of Occupations and Careers.

****2. Arrange with your instructor to see the filmstrips "Preparing for Jobs in the 70's" and to listen to the records that go with them. View Part 1 up to the section on computers and Part 2 up to the section on scales work. As you watch, note the engineering and physical-science technicians and the different types of work tasks they do.

_____3. Read Part 1 of the Student Information Sheet, "Technical Occupations."

_____4. Explain, in a sentence or two in the space below, the difference between the work done by engineering and physical-science technicians and the work done by engineers and scientists. Check your answer with Part 1 of the Student Information Sheet, "Technical Occupations."

____

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____

_____5. You have learned about what engineering and physical-science technicians do. To practice some of the on-the-job activities of electronic technicians use the Job Experience Kit, "Electronic Technician." Read the booklet in the Kit and follow the directions in it. Keep your completed answer sheet with this Student Guide.

_____6. Read the section on "Draftsmen" on page 196 of Occupations and Careers.

_____7. You have learned something about what Draftsmen do. To practice some of their on-the-job activities, use the Job Experience Kit, "Draftsman." Read the booklet in the Kit and follow the directions given in it. Keep your completed answer sheet with this Student Guide.

_____8. Read the section on "Programmers" on p. 198 of Occupations and Careers. Look at the chart on p. 200 to find out the employment outlook for computer programmers.

☐ 9. Arrange with your instructor to view the section on computer programmers in Part 1 of the filmstrips and records, "Preparing for the Jobs of the 70's".

____10. Read the section on "Photographers" on p. 190 in Occupations and Careers.

____11. Read Part 2 of the Student Information Sheet, "Technical Occupations." Answer the questions found there in the spaces below. When you have finished, check your answers with those listed in the student information sheet.

Circle the correct answer:

Question 1: f/11 or f/22

Question 2: 30 or 250

Question 3: Time (seconds) 1/8 or 1/25
Light (aperture) f/32 or f/8

Circle the correct combination.

_____12. Usually photographers work at two main picture producing tasks. List these in the space below. Reread the first sentence under "Photographers" on p. 190 of Occupations and Careers to check your answer.

1. ______________________________

2. ______________________________

_____13. Optional: Arrange to visit a photography studio and to talk with the photographer about his main on-the-job activities.

_____14. You have just learned about the occupations of engineering and physical-science technician, draftsman, computer programmer, and photographer. Remember that these occupations are examples of some of the occupations included in LRG VII: TECHNICAL JOBS.

_____15. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

TEST

TECHNICAL OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following occupations is included in the group of Technical Occupations?

   a. Computer operator

   b. Computer programmer

   c. Key-punch operator

   d. Maintenance electrician

2. Which of the following occupations is included in the group of Technical Occupations?

   a. Draftsman

   b. Engineer

   c. Scientist

   d. Architect

3. Which of the following occupations is included in the group of Technical Occupations?

   a. Newspaper reporter

   b. Photographer

   c. Artist

   i. Printing press man

4. Which of the following statements best describes the work tasks of technicians?

   a. They conduct laboratory experiments.

   b. They plan how to manufacture products.

   c. They help install and maintain equipment.

   d. They perform a wide variety of work tasks.

5. Compared with an engineer or scientist, a technician is usually required to have

   a. more education.

   b. less education.

   c. about the same amount of education.

6. Which of the following tasks would probably be performed by a technician?

   a. Supervising the construction of a dam

   b. Designing a new type of airplane

   c. Conducting tests to insure the quality of a product

   d. Managing a division of an electronics company

7. Which of the following best describes the work of a draftsman?

   a. Planning and designing buildings

   b. Writing drafts of technical articles

   c. Preparing detailed drawings

   d. Taking measurements of the physical characteristics of land

8. A draftsman would most typically work with

   a. a medical technologist.

   b. a photographer.

   c. a statistician.

   d. an architect.

9. Which of the following tasks is usually performed by a draftsman?

   a. Conducting a time-and-motion study on plant efficiency

   b. Preparing detailed blueprint plans of a building

   c. Designing a machine which produces power

   d. Supervising construction workers on the job

10. Which of the following is a common work task of a computer programmer?

   a. Designing new computers

   b. Preparing instructions for the computer to follow

   c. Operating the controls which run the computer

   d. Repairing computers when they do not work properly

11. A computer programmer would most typically perform which of the following tasks?

   a. Key-punch information on computer cards

   b. Feed information into the computer

   c. Analyze, in a logical manner, a problem to be solved by a computer

   d. Train others in the operation of data processing machines

12. Which of these statements best describes the employment opportunities for computer programmers?

   a. There will be a decreasing number of job openings as more programmers are trained.

   b. There will be very few opportunities since computers are expensive.

   c. There will be fair opportunities for a few well-trained programmers over the next few years.

   d. There will be excellent opportunities as the use of computers increases.

For each of Questions 13 through 16, answer:

a -- if the task is one that would typically be performed by a photographer

or

b.-- if the task would not typically be performed by a photographer.

13. Developing, enlarging, and printing pictures

14. Using different kinds of lighting equipment

15. Designing and building cameras

16. Using different cameras, lenses, and filters

EXPLORING GOALS MINI ~ PAC

STUDENT INFORMATION SHEET

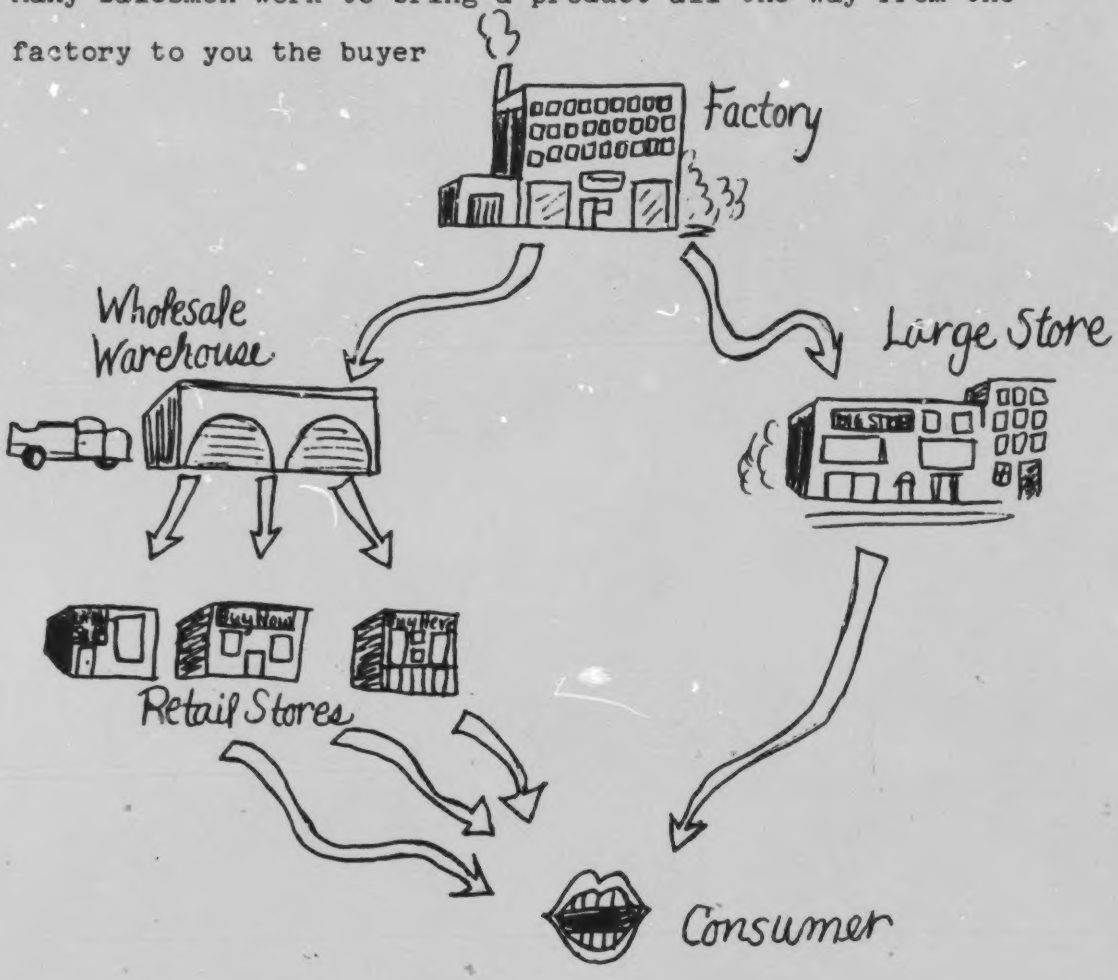
BUSINESS SALES OCCUPATIONS

Sr. 207(74)
VIII

Part 1

When you buy a toothbrush at the corner drugstore, you may not realize how many salesmen played a part in getting that toothbrush from the factory to you. First a manufacturers' salesman sold it to a wholesaler, who stored it in a warehouse where products are kept until they are sent to retail stores.

Then the wholesale salesman sold it to the corner store and finally the retail salesman at your corner store sold it to you. Many salesmen work to bring a product all the way from the factory to you the buyer


Factory
Wholesale Warehouse
Large Store
BIG STORE
Buy Now
Buy Here
Retail Stores
Consumer

Part 2

Some salesmen are paid a certain amount for each hour they work or a salary--a certain amount per week or per month. A salesman who is paid this way cannot increase his income by his products. But many salesmen are paid a certain percentage of the sales they make--that is, a commission. A salesman who is paid a commission can earn more money by selling more of his product. Many salesmen are paid partly by commission; that is, they receive a salary for the amount of work they do plus a percentage of the sales they make. Some salesmen are paid only a commission. A salesman paid only a commission may work many hours, but if he does not sell his product, he will not earn any money.

A salesclerk at a drugstore is usually paid a salary or so much for each hour he works. The amount a clerk earns depends on how long he works and not on how much he sells.

In some department stores, the salesclerk is paid a salary plus a commission. This type of clerk is paid a salary for the hours he works plus a percentage of the sales he makes.

A paper boy is usually paid a commission form of income. The amount he earns depends on how many papers he delivers. The more papers he delivers, the more he earns.

Part 3

You know that not everyone is allowed to drive. Before a person can drive by himself, he must reach a certain age and pass a test to show that he knows the basic rules of driving and that he can drive a car. The purpose of requiring a motorist to have a driver's license is to protect other people on the road.

Some occupations also require a license or certification to show that a person has met certain requirements. By state law, a real-estate salesman must pass a test before he can sell real estate. Requiring a license protects people who buy a house because they can be sure that the real-estate salesman knows the laws regarding buying and selling land and houses.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207(74)
VIII

BUSINESS SALES OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Business Sales group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following occupations are included in the family of Business Sales occupations: retail, wholesale, manufacturers', insurance, and real-estate salesmen.
2. Describe the main work activities of a retail salesman.
3. Describe the main work activities of manufacturers' and wholesale salesmen.
4. Describe the commission and the salaried forms of income and compare the two.
5. Identify three services that an insurance salesman provides for his clients.
6. Explain why a license is required to become a real-estate salesman.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

Which of the statements below describes a main work activity of a retail salesman?

a. Talking with people in a neighborhood to determine interest in a product

b. Representing a manufacturer to other business concerns

c. Answering questions about, or demonstrating the use of, a product

d. Calling on retailers and buyers for industrial and commercial firms

STUDENT DIRECTIONS:

_____1. Read p. 232 and Study Chart II on p. 233 of Occupations and Careers.

_____2. Read Part 1 of the Student Information Sheet, "Business Sales Occupations."

_____3. List the three largest groups of salesmen mentioned in Occupations and Careers in the spaces below. Then, in the space provided, briefly explain how each differs from the others in terms of what they do on the job.

(1) ____

____

____

____

____

(2) ____

____

____

____

____

(3) ____

____

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____

____

_____4. List two other large groups of salesmen mentioned in Occupations and Careers and write down what they sell.

(4) ____

____

(5) ____

____

_____5. Read pp. 236 and 237, "Salespersons in Retail Stores," in Occupations and Careers.

_____6. List three kinds of retail stores in your neighborhood or town.

(1) ____

(2) ____

(3) ____

_____7. Visit a retail store in your neighborhood or town. For at least 15 minutes, watch the salesclerk and then describe the activities you see the clerk doing as part of his job. If the salesclerk does not have any customers, you may want to explain your assignment to him and ask him a few questions about his job duties. If it is not possible for you to visit a retail store, try to remember the different activities you have seen salesclerks doing and describe these activities.

_____8. You have read about what retail salesmen do. To practice some of their on-the-job activities use the Job Experience Kit titled "Salesperson." Read the booklet and answer the questions in it on the answer sheet that comes with the kit. Keep your completed answer sheet with this Student Guide.

_____9. Read pp. 239-243, "Manufacturers' Salesmen" and "Salesmen in Wholesale Trade" in Occupations and Careers.

****
****10. a. One of the main activities of wholesale and manufacturers' salesmen is contacting other salesmen and persuading these customers to buy their products. With two other students, act out how a wholesale salesman would try to convince his customer to buy the product he sells.

Salesman: Have one person be a wholesale drug salesman who is selling a new pill that helps people get well quickly when they have a common cold. The salesman should make up a name for his new pill and decide on some "selling points"to use in order to convince the druggist that he should carry the pill in his store.

The Setting: The druggist is sitting down at a desk in his office. The drug salesman enters the office and sits down near the druggist.

The Other Student: The other student in your group should watch the two students act out this situation. The student who watches should keep in mind the following questions:

1. Is this how it would really happen?
2. What did the salesman do that was effective?
3. How could the salesman have been more effective?
4. Is that what the druggist probably would have done in real life?

b. After the two students act out the situation, have everyone in your group discuss the questions listed above.

c. Now switch roles and have a different person be the salesman and a different person be the druggist. Afterwards, again discuss how the situation was acted out.

____11. Review pp. 239-243 of Occupations and Careers and find an example (for both a manufacturers' salesman and a wholesale salesman) of:

1. the paper work he does, and
2. an extra service he might provide for his customer

Manufacturers' Salesman:

(1) ____

____

(2) ____

____

Wholesale Salesman:

(1) ____

____

(2) ____

____

____12. Write a short paragraph describing the main work activities of manufacturers' and wholesale salesmen.

____13. Read Part 2 of the student information sheet, "Business Sales Occupations."

____14. List one other example of people who are paid a salary only, and one other example of people who are paid partly or completely by commission.

Salary: ________________________________

Commission: ________________________________

____15. Imagine you are a salesman. Pick a product you would like to sell and write it down below. Then explain how you would like to be paid for your work:

(a) by the hours you work or a salary

(b) by a commission, or

(c) by a combination of salary and a commission

Be sure to explain the reasons behind your selection.

____16. Read pp. 243 and 244, "Insurance Agents and Brokers," in Occupations and Careers.

____17. In a sentence or two, explain why people buy insurance.

____

____

____

____

____18. List three services provided by an insurance salesman for his client.

(1) ____________________________________

____

(2) ____________________________________

____

(3) ____________________________________

____

____19. Read "Real-estate Salesmen and Brokers" on pp. 244-247 in Occupations and Careers.

____20. Read Part 3 of the student information sheet, "Business Sales Occupations."

____21. In your own works, write a sentence or two explaining why a real-estate salesman is required to have a license.

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____22. List examples of two other occupations that require a license.

(1) ____________________________________

(2) ____________________________________

____23. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to any of the tapes listed below and answer the following questions in reguards to the specific tape.

VG 712 -- "Insurance Broker"

VG 729 -- "Retail Saleswoman"

VG 727 -- "Real Estate Broker"

VG 739 -- "Grocery Store Clerk"

1. What are some of the job requirements?
2. What are the earnings?

   Beginning--

   Peak--
3. Is the occupation growing or declining?
4. What are the opportunities for advancement?

TEST

BUSINESS SALES OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following occupations is included in the family of Business Sales occupations?

    a. Advertising worker

    b. Insurance agent

    c. Pharmacist

    d. Barber

2. Which of the following occupations is included in the family of Business Sales occupations?

    a. Marketing-research worker

    b. Waitress

    c. Business manager

    d. Real-estate agent

3. Which of these businesses would be likely to hire a retail salesman?

    a. A typewriter manufacturing firm

    b. An insurance company

    c. A wholesale drug company

    d. A department store

4. Which of the following tasks is typically part of a retail salesman's job?

    a. Assisting customers in selecting products to purchase

    b. Designing advertisements for newspapers and magazines

    c. Visiting customers in an assigned geographical area

    d. Delivering products to the customer's home or business

5. Which of the following is a typical task of manufacturers' salesmen and wholesale salesmen?

   a. Deciding on the price of the products they sell

   b. Delivering the products they sell

   c. Ringing up sales on a cash register

   d. Contacting customers and trying to convince them to buy their products

6. Which of the following is a typical task of manufacturers' salesmen and wholesale salesmen?

   a. Completing paper work such as sales reports and order forms

   b. Hiring, training, and supervising other salesmen

   c. Repairing any products they sell that are damaged

   d. Keeping shelves stocked with merchandise

7. A salesman who sells products directly to the individual customer is a

   a. manufacturers' salesman.

   b. wholesale salesman.

   c. retail salesman.

   d. real-estate salesman.

8. A salesman who sells mainly to retail stores is a

   a. retail salesman.

   b. wholesale salesman.

   c. manufacturers' salesman.

   d. door-to-door salesman.

9. A salesman who sells large quantities of a manufacturer's products to other businesses is a

   a. retail salesman.

   b. wholesale salesman.

   c. manufacturers' salesman.

   d. door-to-door salesman.

10. Jeanette works as a sales clerk in a dress store and is paid $75 a week plus a percentage of the cost of all the clothes she sells. Which form of income does Jeanette receive?

   a. salary only

   b. Commission only

   c. Salary and commission

11. Frank works as a sales clerk in a drug store and earns $100 a week, no matter how much he sells during the week. Which form of income does he receive?

   a. Salary only

   b. Commission only

   c. Salary and commission

12. Roy sells greeting cards door-to-door and earns 50 cents for every box of cards he sells. Which form of income does he receive?

   a. Salary only

   b. Commission only

   c. Salary and commission

13. Which of these is a service commonly provided by an insurance salesman for his client?

   a. Advising his client about what stocks to buy

   b. Advising his client about how much money he should pay for a house

   c. Discussing different types of insurance with his client

   d. Figuring out how much income tax his client should pay

14. Which of these is a service commonly provided by an insurance salesman for his client

   a. Deciding for his client about how much insurance his client should buy

   b. Advising his client about the type and amount of insurance he should buy

   c. Loaning money to his client in case of an emergency

   d. Deciding how much money a client can borrow

15. Which of the following best describes why a license is required of a real-estate salesman?

a. To allow the salesman to earn a higher income

b. To control which houses are sold

c. To protect the buyer

d. To limit the number of real-estate salesmen

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE

Sr. 207 (74)
IX-1

MECHANIC AND REPAIRMAN OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Mechanics and Industrial Trades group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following occupations are included in the group of Mechanics and Repairmen Occupations: automotive mechanic, maintenance electrician, and appliance serviceman.
2. List three common ways that mechanics and repairmen learn the skills required for their job.
3. Describe the job opportunities for automotive mechanics
4. List the two main work activities of a maintenance electrician.
5. Identify four appliances that appliance servicemen typically repair.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

1. Which of the following is an activity that a maintenance electrician probably would perform on-the-job?
   a. repair a transformer
   b. repair an iron
   c. repair a television set
   d. repair a broken pipe

STUDENT DIRECTIONS:

_____1. Read pp. 294-296 on "Mechanics and Repairmen" in Occupations and Careers.

_____2. In the spaces below, list three ways that a mechanic or repairman can learn the skills needed for his job. Check your answers with your reading.

a. ____

b. ____

c. ____

_____3. Read the section on "Apprenticeship," pp. 59-61 in Occupations and Careers. Answer the following questions.

a. List two advantages of apprenticeship over other methods of learning a trade.

1. ____

____

2. ____

____

b. About how long are most apprenticeship programs?

____

_____4. Read the section on "Automotive Mechanics" on pp. 296-299 of Occupations and Careers.

_____5. Read the following paragraph:

"Cars, buses, and trucks are a major means of transportation in the U.S. today. We depend on automotive mechanics to keep these vehicles in good repair. In 1969 there were over 100 million cars, trucks, and buses on the road and by 1980 there will probably be 37 million more vehicles on the road. A fair number of new jobs are expected for automotive mechanics since they will be needed to maintain these cars, buses, and other vehicles."

_____6. You have just read about what automotive mechanics do and about job prospects for them. To practice some of their on-the-job activities use the Job Experience Kit "Automobile Mechanic." Read the booklet in the kit and follow the directions in it. Keep your completed answer sheet with this Student Guide.

_____7. Read pp. 299-300, "Maintenance Electricians," in Occupations and Careers.

_____8. Look up the Word "maintain" in a dictionary. Using this information, explain in a sentence or two (in the space below) what a maintenance electricain does to "maintain" electrical equipment.

____

____

____

____

____

_____9. You may not realize how much you depend on maintenance electricians. Just imagine what would happen if the electrical power went off in your neighborhood and a maintenance electrician couldn't be found immediately to solve your problem. List the things in each room of your house that you would be without and how it would affect you. For example, the refrigerator in your kitchen wouldn't work and much of your food would spoil. You may work with another student, if you wish.

_____10. List the two main tasks of a maintenance electrician. Check your answer by rereading the first sentence of the section on maintenance electricians in Occupations and Careers.

a. ____

b. ____

_____11. Read the section on "Appliance Servicemen. . ." on pp. 300-301 of Occupations and Careers.

_____12. List four appliances that appliance servicemen would be likely to repair.

a. ____

b. ____

c. ____

d. ____

____13. You have just read about what appliance servicemen do. To practice some of their on-the-job activities use the Job Experience Kit "Appliance Serviceman." Read the booklet in the kit and follow the directions in it. Keep your completed answer sheet with this Student Guide.

____14. You have just learned about the occupations of automotive mechanic, maintenance electrician, and appliance serviceman. Remember that these occupations are examples of some of the occupations included in LRG IX: MECHANICS, INDUSTRIAL TRADES.

____15. When you have completed all the activities in this Student Guide you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to any one of the following tapes and answer the following questions in regards to the tape

VG 702 -- "Appliance Serviceman"
VG 716 -- "Machinist"
VG 725 -- "Printer"
VG 734 -- "TV & Radio Serviceman"
VG 747 -- "Auto Mechanic"
VG 750 -- "Tool and Die Maker"

1. What are the job requirements

   Schooling--

   Training--

2. What are the usual working conditions?

   Hours--

   Days--

3. What personal or physical characteristics are required?

4. What are the earnings?

TEST

MECHANIC AND REPAIRMAN OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following occupations is included in the group of Mechanics and Repairmen?

   a. All-round machinist

   b. Maintenance electrician

   c. Plumber

   d. Shoe repairman

2. Which of the following occupations is included in the group of Mechanics and Repairmen?

   a. Automobile assembler

   b. Appliance serviceman

   c. Roofer

   d. Electrical engineer

3. Probably the best way to learn the skills of a mechanic or repairman is to

   a. take machine shop class in high school.

   b. work as a mechanic's helper.

   c. serve a four-year apprenticeship.

   d. attend junior college for two years.

4. Which of the following is another common way that mechanics learn their skills?

   a. By attending vocational or technical schools or receiving training in the armed services

   b. By attending a four-year university

   c. By reading repair manuals

   d. By working in a factory assembly line

5. Which of the following tasks does a maintenance electrician usually perform on the job?

   a. Designing electrical equipment

   b. Putting together electrical equipment

   c. Inspecting electrical equipment to find defects

   d. Repairing electrical appliances such as clocks and radios

6. A common work activity for most appliance servicemen is

   a. designing appliances.

   b. building appliances.

   c. installing appliances.

   d. repairing appliances.

7. Which of these workers would probably repair a lighting system in a large office building?

   a. Construction electrician

   b. Maintenance mechanic

   c. Instrument repairman

   d. Maintenance electrician

8. Which of these would an appliance serviceman work on?

   a. Washing machine

   b. Typewriter

   c. Television set

   d. Automobile

9. In the next five years the number of automotive mechanics is expected to

   a. decrease.

   b. increase.

   c. stay the same.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207 (74)
IX-1

MECHANIC AND REPAIRMAN OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Mechanics and Industrial Trades group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following occupations are included in the group of Mechanics and Repairmen Occupations: automotive mechanic, maintenance electrician, and appliance serviceman.
2. List three common ways that mechanics and repairmen learn the skills required for their job.
3. Describe the job opportunities for automotive mechanics
4. List the two main work activities of a maintenance electrician.
5. Identify four appliances that appliance servicemen typically repair.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

1. Which of the following is an activity that a maintenance electrician probably would perform on-the-job?

   a. repair a transformer

   b. repair an iron

   c. repair a television set

   d. repair a broken pipe

STUDENT DIRECTIONS:

_____1. Read pp. 294-296 on "Mechanics and Repairmen" in Occupations and Careers.

_____2. In the spaces below, list three ways that a mechanic or repairman can learn the skills needed for his job. Check your answers with your reading.

a. ____

b. ____

c. ____

_____3. Read the section on "Apprenticeship," pp. 59-61 in Occupations and Careers. Answer the following questions.

a. List two advantages of apprenticeship over other methods of learning a trade.

1. ______________________________________

____

2. ______________________________________

____

b. About how long are most apprenticeship programs?

____

_____4. Read the section on "Automotive Mechanics" on pp. 296-299 of Occupations and Careers.

_____5. Read the following paragraph:

"Cars, buses, and trucks are a major means of transportation in the U.S. today. We depend on automotive mechanics to keep these vehicles in good repair. In 1969 there were over 100 million cars, trucks, and buses on the road and by 1980 there will probably be 37 million more vehicles on the road. A fair number of new jobs are expected for automotive mechanics since they will be needed to maintain these cars, buses, and other vehicles."

_____6. You have just read about what automotive mechanics do and about job prospects for them. To practice some of their on-the-job activities use the Job Experience Kit "Automobile Mechanic." Read the booklet in the kit and follow the directions in it. Keep your completed answer sheet with this Student Guide.

_____7. Read pp. 299-300, "Maintenance Electricians," in Occupations and Careers.

_____8. Look up the Word "maintain" in a dictionary. Using this information, explain in a sentence or two (in the space below) what a maintenance electricain does to "maintain" electrical equipment.

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_____9. You may not realize how much you depend on maintenance electricians. Just imagine what would happen if the electrical power went off in your neighborhood and a maintenance electrician couldn't be found immediately to solve your problem. List the things in each room of your house that you would be without and how it would affect you. For example, the refrigerator in your kitchen wouldn't work and much of your food would spoil. You may work with another student, if you wish.

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____

____10. List the two main tasks of a maintenance electrician. Check your answer by rereading the first sentence of the section on maintenance electricians in Occupations and Careers.

a. ____
____

b. ____
____

____11. Read the section on "Appliance Servicemen. . ." on pp. 300-301 of Occupations and Careers.

____12. List four appliances that appliance servicemen would be likely to repair.

a. ____

b. ____

c. ____

d. ____

____13. You have just read about what appliance servicemen do. To practice some of their on-the-job activities use the Job Experience Kit "Appliance Serviceman." Read the booklet in the kit and follow the directions in it. Keep your completed answer sheet with this Student Guide.

____14. You have just learned about the occupations of automotive mechanic, maintenance electrician, and appliance serviceman. Remember that these occupations are examples of some of the occupations included in LRG IX: MECHANICS, INDUSTRIAL TRADES.

____15. When you have completed all the activities in this Student Guide you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to any one of the following tapes and answer the following questions in regards to the tape

VG 702 -- "Appliance Serviceman"
VG 716 -- "Machinist"
VG 725 -- "Printer"
VG 734 -- "TV & Radio Serviceman"
VG 747 -- "Auto Mechanic"
VG 750 -- "Tool and Die Maker"

1. What are the job requirements

   Schooling--

   Training--

2. What are the usual working conditions?

   Hours--

   Days--

3. What personal or physical characteristics are required?

4. What are the earnings?

TEST

MECHANIC AND REPAIRMAN OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following occupations is included in the group of Mechanics and Repairmen?

   a. All-round machinist

   b. Maintenance electrician

   c. Plumber

   d. Shoe repairman

2. Which of the following occupations is included in the group of Mechanics and Repairmen?

   a. Automobile assembler

   b. Appliance serviceman

   c. Roofer

   d. Electrical engineer

3. Probably the best way to learn the skills of a mechanic or repairman is to

   a. take machine shop class in high school.

   b. work as a mechanic's helper.

   c. serve a four-year apprenticeship.

   d. attend junior college for two years.

4. Which of the following is another common way that mechanics learn their skills?

   a. By attending vocational or technical schools or receiving training in the armed services

   b. By attending a four-year university

   c. By reading repair manuals

   d. By working in a factory assembly line

5. Which of the following tasks does a maintenance electrician usually perform on the job?

   a. Designing electrical equipment

   b. Putting together electrical equipment

   c. Inspecting electrical equipment to find defects

   d. Repairing electrical appliances such as clocks and radios

6. A common work activity for most appliance servicemen is

   a. designing appliances.

   b. building appliances.

   c. installing appliances.

   d. repairing appliances.

7. Which of these workers would probably repair a lighting system in a large office building?

   a. Construction electrician

   b. Maintenance mechanic

   c. Instrument repairman

   d. Maintenance electrician

8. Which of these would an appliance serviceman work on?

   a. Washing machine

   b. Typewriter

   c. Television set

   d. Automobile

9. In the next five years the number of automotive mechanics is expected to

   a. decrease.

   b. increase.

   c. stay the same.

EXPLORING GOALS
MINI ~ PAC

STUDENT INFORMATION SHEET

INDUSTRIAL TRADES OCCUPATIONS

Sr. 207 (74)
IX-2

Part 1

Machines are involved in manufacturing a wide variety of products. Machines are used to make products that you use every day, such as the desks in your classroom, the pen or pencil you write with, and the light bulbs that light up your room. Machines are used in the manufacture of clothing, the processing of food, the printing of books, and the constructing and assembling of complicated equipment such as television sets, automobiles, and computers. In fact, it would be difficult to think of anything that wasn't made or processed at least partly by a machine! Skilled machinists are needed to make and maintain these machines.

Most all-round machinists work in factories where they make or repair metal parts for machines. If you have cut a piece of metal or used a file to smooth a metal edge, you have done some of the work of a machinist. An all-round machinist uses machine and hand tools to cut, grind, and file a block of metal into a desired shape. He must be able to operate a variety of machine tools, measure accurately, read blueprint drawings, and use shop math when needed. The machinist plans and carries out all the operations needed to make a rough piece of metal into a finished part.

Part 2

Tool and die makers not only need the same skills as an all-round machinist but also special skills in making the precision tools required to mass-produce products. For example, tool and die makers construct machinery needed to manufacture automobiles. For the engine of a car to operate smoothly, all the parts of the engine must fit together correctly. Toolmakers build a variety of tools such as jigs, fixtures, and gauges which are then used to produce engine parts that are always the same and that will fit correctly into the engine. The body of an automobile is made up of many separate parts that fit together closely when assembled.

Die makers construct forms which are set in presses to stamp out the metal parts of the body for an automobile. Tool and die makers are needed to make the tools and dies used in making many other products in addition to automobiles.

Part 3

Just think of all the things that have to be printed: the books in your school, at the library, in the stores, and in your home; millions of newspapers; all the different magazines; and many other publications such as calendars, business forms, and pamphlets. Skilled workers are needed at every stage of production to print these numerous publications.

In the first stage of the printing process, workers in the composing-room occupations set the type, make sample copies, and check the type for mistakes. Composing-room workers are shown setting type in the illustration on p. 309 of Occupations and Careers. In the next stage, platemakers take the plates of type set in the composing room and prepare copies of the plates to use on the printing presses. Printing pressmen do the actual printing in the final stage. They put the plates in the press and control the press so that it prints properly. A pressman is shown putting a plate on a newspaper press on p. 311 in Occupations and Careers. A wide variety of job opportunities exists for skilled workers in these and other printing occupations.

Part 4

There are a variety of ways for a young person to learn the skills needed in industrial trades occupations. Many workers develop the basic skills while in high school through vocational education classes. Some receive valuable training and experience while in the armed services. Most workers learn the skills needed in industrial trade occupations through some type of work-experience program. In some of these programs, trainees combine classroom lectures and on-the-job practice, as in most apprenticeship programs. In other programs, workers just learn by watching and by informal instruction from other workers.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207 (74)
IX-2

INDUSTRIAL TRADES OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Mechanics, Industrial Trades group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following jobs are included in the group of Industrial Trades occupations: Machinist, tool and die maker, and printing worker.
2. Describe the typical work activities of an all-round machinist.
3. Describe the typical work activities of tool and die makers.
4. Identify the main tasks of the following types of printing workers: composing-room worker, platemaker, and printing pressman.
5. List three common means of learning industrial trades.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

1. Which of the statements below describes a typical work activity of an all-round machinist?
   a. shaping a block of metal into an intricate part which meets precise specifications
   b. constructing metal forms and molds used in factories to shape metal
   c. making jigs, fixtures, and gauges
   d. preparing duplicate plates

STUDENT DIRECTIONS:

____1. Read p. 307 in Occupations and Careers.

____2. Read Part 1 of the student information sheet, "Industrial Trades Occupations."

____3. Write a short paragraph describing the work activities of an all-round machinist.

____4. Read the section on "Tool and die makers . . ." from the bottom of p. 307 up to "Printing Occupations" on p. 308 in Occupations and Careers.

____5. Read Part 2 of the student information sheet, "Industrial Trades Occupations."

____6. Write a short paragraph describing the work activities of tool and die makers.

____

____

____

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____

____7. Read the section on "Printing Occupations" from the bottom of p. 308 through p. 310 in Occupations and Careers.

____8. Read Part 3 of the student information sheet, "Industrial Trades Occupations."

____9. In a sentence or two for each, explain the main tasks of the following types of printing workers: (1) composing room worker; (2) platemaker; and (3) printing pressman.

1. ____

____

____

2. ____

____

____

3. ____

____

____

____10. Review the section on "Machining Occupations" on pp. 307-308 of Occupations and Careers and find the methods mentioned for learning machinist skills. Also read the section on "Job Training and Opportunity" for printing crafts from p. 311 through the first paragraph on p. 313 of Occupations and Careers and find the methods mentioned for learning printing skills.

___11. Read Part 4 of the student information sheet, "Industrial Trades Occupations."

___12. List three common ways of learning basic skills needed to enter industrial trades.

1. ____
____

2. ____
____

3. ____
____

___13. List the three main occupations that have been discussed in this unit. All three occupations are included in the group of "Industrial Trades Occupations."

1. ____
2. ____
3. ____

___14. When you have completed all the activities in this Student Guide you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to any one of the tapes listed below and answer the questions in regards to the specific tape.

VG710 "Electrician"

(1) What are the earnings?
Beginning--
Peak--

(2) Must the worker furnish his own tools and equipment and uniforms?

(3) Must he be a member of a union?

(4) What are the job requirements?

(5) Is the occupation growing or declining?

TEST

INDUSTRIAL TRADES OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following jobs is included in the group of industrial trades occupations?
   a. Draftsman
   b. Printing worker
   c. Factory assembler
   d. Construction worker

2. Which of the following jobs is included in the group of industrial trades occupations?
   a. Mechanic
   b. Technician
   c. Machinist
   d. Repairman

3. Which of the following statements is most accurate?
   a. There are several ways for a young person to learn industrial trades.
   b. The only way to learn the skills of an industrial trade is through apprenticeship.
   c. The only way to learn the skills of an industrial trade is to go to college.

4. The common way to be trained for the printing crafts is by
   a. work experience.
   b. apprenticeship.
   c. high school courses.
   d. junior college courses.

5. Which of the following best describes the work of an all-round machinist?
   a. Inspecting and adjusting machines
   b. Demonstrating and selling machines
   c. Teaching people how to operate machines
   d. Making or repairing metal parts for machines

6. The all-round machinist
   a. operates one special kind of machine.
   b. operates a variety of machine tools.
   c. Repairs many different types of machines.
   d. Installs machines in factories.

7. On the job, an all-round machinist
   a. designs machines to be built.
   b. uses machine tools designed to make wooden objects.
   c. draws blueprints for other workers to use.
   d. reads blueprint drawings.

8. Which of the following statements best describes what tool-makers do?
   a. They make hand tools such as hammers and saws.
   b. They inspect and repair tools.
   c. They make tools used in mass production.
   d. They draw accurate blueprints of tools.

9. Which of the following statements best describes what die-makers do?
   a. They construct metal forms used to shape metal in factories.
   b. They draw accurate blueprints using various dies.
   c. They inspect and repair dies.
   d. They operate dies in factories.

10. Which of the following tasks does a composing-room worker usually perform?
   a. Writing material to be printed
   b. Deciding what should be printed
   c. Setting the type on printing plates
   d. Controlling the printing press so that it prints properly

11. Of the following work tasks, which is commonly done by a printing pressman?

    a. Setting the type on the printing plates

    b. Designing new types of printing presses

    c. Building new printing presses

    d. Operating the printing press so that it prints properly

12. Of the following work tasks, which is commonly done by a platemaking worker?

    a. Choosing the lay-out of the plates

    b. Setting the type on printing plates

    c. Making metal, plastic, or rubber copies of printing plates

    d. Putting the plates on the printing press.

EXPLORING GOALS
MINI ~ PAC

STUDENT INFORMATION SHEET

BUILDING TRADES OCCUPATIONS

Sr. 207 (74)
X

TAPE SCRIPT

"A House Goes Up"

N = Narrator

C = Carpenter

N: The following tape is based on an interview with a carpenter who has been working on buildings for over 30 years. For most of these years. he has worked as a contractor in charge of building projects. He talks about how houses are constructed, how to prepare for the building trades, and the importance of good craftsmenship.

N: Could you start by telling us about the stages in constructing a house and the jobs done by different workers?

C: It takes teamwork to build a house. Each man contributes his own special skill to complete the job. First comes the excavating. Construction-machinery operators bring in power shovels and bulldozers and grade the site, dig a hole for a foundation, and haul the dirt away in trucks. Then the carpenters get the levels and pour the foundation. They put up a rough frame next--the beams and cross bars that form a wooden skeleton of a house. It's very important that this work is done well. If you start out level and do the roughing in right, your finish work is half done. But if you're sloppy about your framing, it's very difficult to ever get things right.

Then you put in the basic plumbing and electric wiring. The plumber--or pipe fitter--puts in the water pipes, gas pipes, and the waste system. The system of pipes is like a puzzle; every pipe has to be cut to the proper size and put in the right position with a tight seal that won't leak. Later on, the faucets and other outlets are attached to this pipe system. The basic electric power lines are put in then too. Later, electricians finish the job by setting up the outlets, switches, wires, and circuit breakers for a safe power system.

If the house uses brick, we bring some bricklayers in. A lot of people like the look of brick and it resists fire, heat, and cold. It takes time to put down the mortar and place the bricks in a straight position block by block, but the experienced bricklayers can get the job done in no time.

Then comes the finish work. The carpenters put down the baseboards for the floor, build stairs, handrails, shelves, and put hinges and doorknobs on the doors. The painters come in, set up their scaffolding, prepare the surface so it's smooth, and put on the necessary coats of paint. All the finishing touches are put on to make the house complete.

N: How can a young person prepare for a career in one of the building trades?

C: The best place to start is in high school. Take geometry and other math courses. Carpentry especially is all based on geometry. Then study mechanical arts and take some mechanical drawing so you can understand blueprints. Then get in an apprenticeship program where you can learn the theory and also get a chance to put it into practice. You just have to be interested in the work to make a good tradesman.

I like training young people. They want to do a good job and often they're very particular. I trained one boy not too long ago who turned out to be a fine worker.

He came to me on a motorcycle one day and said, "What's the chance of getting a job?"

"What can you do?" I asked.

"I can't do a thing," he said, "but I'm anxious to learn. I just painted my grandma's house and she said I did a good job."

So I said, "Well, bring your brushes over tomorrow and let me look at them. I can tell if you're a good worker or not by looking at your brushes."

So he brought his brushes over, and they were good brushes. So I put him to work. He turned out to be one of the best men I've ever had. Not only at painting, but he made beautiful joints. When he does a joint, it looks as though it's just grown there. He was anxious to do a good job. And rather than talking about the girls at lunch he would read over the blueprints and ask questions about the steel square.

I expect every man on the job to know as much about the blueprints as I do. I tell the boys when they have a spare minute to sit down and read those plans and digest them so they know what they're doing. So they know what they're building. It pays off.

N: How did you get your training as a carpenter?

C: I went to a trade school and learned how to use the tools. On weekends, we would go out and build barns for farmers to get some practice in what we'd learned. But a lot of the short-cuts and all the tricks of the business I've learned from old experienced carpenters.

I remember when I graduated from trade school and went out on my first job. A contractor came in to the school and said he wanted the top two fellows to help him on a job. Jody Perkins was one, and I don't know why, but they picked me for the other one. We went up to the foreman. We both had brand new miter boxes, and we were all dressed up in new carpenter overhauls with sharp carpenter pencils in our pockets.

The foreman said to me, "You go out there to the south-east corner and go to putting down base and base shoe and cope your joints."

I said, "Yes, sir."

I didn't know what he meant, but I started over to the southeast corner. When I got there, I went over to an old Scotsman and I said, "Say, could you tell a country boy something? The boss said for me to put down a base and a base shoe and cope my joints. Could you tell me what he meant?"

"Ahhh," he says, "it's simple." "But," he says, "first thing you do is go hide that miter box. It gives you away. They just use a box like that in school." Then he drug out a little old wooden miter box out of the closet onto the floor. He says, "Now, over in the first piece of base you put on, you just put it on square. Cut your joints square. Then when you go to cope to that you cut a joint--just like you had mitered the other one. Take your coping saw and as you cut undercut it a little, and you cope it right along that miter line. And when you fit it up there, it fits just as tight as you please. Makes a nice tight joint!"

He showed me two or three and then, boy, I went to work! When night came, I'd made quite a showing. Well, Jody, he wasn't so lucky. He didn't have anyone to ask. No one was there to take him under his wing like this old Scot had done for me. He went ahead on his own and did it his own way, and the boss didn't want it that way. The boss canned him that night. Nearly broke Jody's heart. And Jody was the best one of the class, too!

N: What kind of buildings have you worked on besides houses?

C: My first big contract was a $3 million contract with Uncle Sam to convert an old fort into an Indian school. They set up a fine school there. And I built a $10 million hospital over in Hawaii with 1,800 men under me. Refrigeration plants, warehouses, all kinds of home. I've built them all. And some fine homes! There's one not too far from here that I built which I think is an outstanding house in this part of the country.

It's a field that is always going to have possibilities. The foxes have holes, the birds have nests, and people need a house to live in, so it'll always be a good business. New materials and prefabricated parts make the jobs in the building trades go a lot faster now, but I don't think they'll ever be able to do it automatically. So there will always be a need for fine craftsmen.

N: Thank you very much.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE Sr. 207(74)
X

BUILDING TRADES OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Building Trades group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit, you should be able to:

1. Recognize that the following occupations are included in the family of Building Trades: carpenter, painter, plumber and pipe fitter, bricklayer, construction-machinery operator, and construction electrician.

2. Describe the usual methods of obtaining required training in the building trades.

3. Describe the main duties of carpenters, painters, plumbers, bricklayers, construction-machinery operators, and construction electricians.

4. Identify the employment opportunities in the Building Trades.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

1. Which of the following occupations is included in the group of Business Trades Occupations:

   a. bricklayer

   b. architect

   c. community planner

   d. draftsman

STUDENT DIRECTIONS:

____1. Read the section on "Building Trades" from p. 283 through the first sentence on p. 284 of Occupations and Careers.

2. Arrange with your instructor to see the filmstrip and listen to the records "Preparing for the Jobs of the '70's." Watch part 2 through the section on the building trades.

____3. In the spaces below, list the six largest building trades. Check your answers on p. 283 of Occupations and Careers.

a. ____________________

b. ____________________

c. ____

d. ____

e. ____

f. ____

____4. Read p. 284 and the first column on p. 286 of Occupations and Careers.

____5. Answer the following questions in the spaces provided. Check your answers with your reading.

a. Why is apprenticeship recommended for learning the building trades? ____________________

____

____

b. How long does an apprenticeship program usually last? ____________

____6. Most construction workers belong to unions. Read the section "What about Labor Unions" on pp. 124 and 125 in Occupations and Careers to learn about the purpose of unions. Also read "Union Hiring Halls" on pp. 109 and 110 in Occupations and Careers.

____7. Optional: Discuss with your guidance counselor the opportunities for apprenticeship in the building trades in your area. Contact a state employment agency, a local union, or a construction firm for additional information on apprenticeship programs. Find out what the requirements are for the programs, how apprentices are selected, whether there is a waiting period for the programs. You might visit a local union hiring hall instead. Find out how jobs are given out at the hiring hall, the requirements for union membership, and the services that the union provides for its members.

____8. Answer the following questions in the spaces provided. Check your work with your readings in Occupations and Careers or your teacher or counselor.

a. What are the nationwide prospects for employment in the building trades? ____________________

____

____

____

b. How might the following factors affect employment opportunities for construction workers?

1. a rapid growth in population in an area ____________

____

____

2. a declining population in an area (people moving away)

____

____

____

3. the construction of a new shopping center and office building complex in an area ____________

____

____

4. the climate in an area where there are long cold winters ______________________

____

____

5. the increasing use of prefabricated parts for buildings which are made at a factory and merely assembled at the building site ____________

____

____

c. Which of the five factors listed above seem to have the most influence on the job opportunities of workers in the building trades in your neighborhood? List the numbers of the factors you choose in the space below.

____9. Read the section, "Principal Building Trades" from p. 286 to p. 292 in Occupations and Careers.

10. Listen to the tape, "A House Goes Up." Follow along in the tape script included in the Student Information Booklet, "Building Trades Occupations."

___11. You have just learned about what workers in the building trades do. To practice the on-the-job activities of carpenters and plumbers, use the two Job Experience Kits: "Carpenter" and "Plumber." Read the booklet in each kit and follow the directions in it. Keep your completed answer sheets with this Student Guide.

___12. Optional: Plan and complete an activity related to the tasks of workers in the building trades. Some possible projects would be the following:

1. make a simple book case for your room,
2. make a simple desk out of plywood board and wooden boxes,
3. refinish a piece of furniture,
4. paint some cabinets in your house, or
5. write a report on the plumbing or electrical wiring in houses or on new developments in the field of construction. Use information from an encyclopedia or other sources.

___13. You have just learned about the occupations of carpenter, painter, plumber and pipe fitter, bricklayer, construction-machinery operator, and construction electrician. Remember that these occupations are examples of some of the occupations included in LRG X: CONSTRUCTION TRADES.

___14. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to any of the tapes listed below and answer the questions in regards to the specific tape.

VG723 "Plumber/ Pipefitter"
VG738 "Heavy Machine Operator"
VG744 "Carpenter"

(1) What are the earnings?
Beginning--
Peak--

(2) Must the worker furnish his own tools, equipment and uniforms?

(3) Must he be a member of a union?

(4) What are the job requirements?

(5) Is the occupation growing or declining?

TEST

BUILDING TRADES OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following occupations is included in the group of Building Trades occupations ?
   a. Architect
   b. Civil engineer
   c. Plumber
   d. Appliance serviceman

2. Nationwide employment opportunities in the building trades are expected to
   a. increase.
   b. remain about the same.
   c. decrease slightly.
   d. decrease substantially.

3. Which of these occupations is included in the group of Building Trades occupations?
   a. Construction machinery operator
   b. Truck driver
   c. Machinist
   d. Mechanical draftsman

4. Most apprenticeship programs for the building trades consist of
   a. correspondence school courses.
   b. classroom instruction only.
   c. on-the-job training only.
   d. both on-the-job training and classroom instruction.

5. Which of these occupations is included in the group of Building Trades occupations?

   a. Electrical engineer
   b. Engineering technician
   c. Construction electrician
   d. Tool and die maker

6. What time period is required for most apprenticeship programs in the building trades?

   a. 6 months to 1 year
   b. 1 to 2 years
   c. 2 to 5 years
   d. 4 to 7 years

7. Which of these workers would probably grade a building site a and dig a hole for the foundation?

   a. Building laborers
   b. Carpenters
   c. Cement finishers
   d. Construction machinery operators

8. Which of these workers would probably erect the rough frame of a house?

   a. Brick layer
   b. Carpenter
   c. Plasterer
   d. Stonemason

9 Which of the following is a work task of plumbers?

   a. Installation of pipes for a water and waste system
   b. Installation of a system of gas pipes and heating units
   c. Repairing or replacing leaky or clogged water pipes
   d. All of the above

EXPLORING GOALS
MINI ~ PAC

STUDENT INFORMATION SHEET

BUSINESS CLERICAL OCCUPATIONS

Sr. 207 (74)
XI-I

TAPE SCRIPT

Occupation: Secretary

N: The following interview is based on a conversation with a young woman who has worked as a secretary for five years. She tells about the duties of her job and how she prepared for her job.

N: What are your duties as a secretary?

S: The duties of a secretary depend on her particular job. I work at a large computer company for a sales manager who has several people working for him, and I think my duties are fairly typical of those of most secretaries. I type letters and other correspondence, expense forms, and technical documents; take dictation; answer the phone; make appointments; arrange conferences; set up and maintain a filing system; make airline and other travel arrangements for my boss when he travels; and help explain the company's rules and regulations to new employees. I find that as a secretary I have a lot of responsibility and that there is quite a variety of duties in my job.

N: About how much of your time do you spend typing?

S: That varies. Sometimes I spend an hour typing, and at other times I type most of the day. Sometimes I won't have much to do at all for several weeks, and then I'll have so much work all at once that I keep quite busy. But again, how much time one spends doing different duties depends on the particular job and what one's own individual boss is like. At my last job, I spent much more of my time typing than I do now.

N: How did you prepare for your job as a secretary?

S: I started out by taking business courses in high school. I was in a college preparatory program, but all of my elective courses were business oriented. I took courses in general business, typing and shorthand. After high school, I attended a business school for a year and took a secretarial training program there.

N: What is secretarial school like?

S: I was in class from 9 to 3 every day and took courses in typing, shorthand, business English and filing. The school also offered special courses for medical and legal secretaries. We concentrated on developing typing and shorthand skills. Some of the girls attended full-time, as I did. But others worked part-time while they took courses, and some worked full-time and took classes at night. A few of the women had worked as secretaries earlier in their lives and had returned to school to brush up on their skills so they could return to work.

N: How did you happen to decide to go into secretarial work?

S: I wanted to develop skills that I could always fall back on to get a job if I needed one. Also I wanted a job where I could meet people. In fact, that's how I met my husband. He used to work for my boss!

N: Did you have much difficulty getting a job?

S: Yes. Even with my secretarial training, it was difficult to get my first job. Most employers wanted a girl with some experience. I found leads for jobs in the want ads of the local paper and through job placement agencies. When I went to interview for a job, I was usually given a short test to check my general ability and my spelling. I was also tested to see how fast I could type and take shorthand. Finally, I found a job in a small one-girl office where I worked for some salesmen. I enjoyed the people I worked with, but there wasn't any opportunity for advancement to a better job. I worked there for about a year and then I decided to look for a new job. By that time, I had increased my typing speed to 80 words per minute and had some experience in office procedures. I had no trouble finding a new job. In fact, I had three job offers in the first week. I earn more money now and I have increased benefits in terms of vacation, insurance and retirment plans. But the atmosphere is more formal, and I have to dress up more than at my old job. But, of course, the benefits vary from company to company, and the atmosphere depends on a lot of different things. I think how well you like your job often depends on the people you work with.

N: What abilities do you think are important for a good secretary?

S: Well, first she should have basic typing and shorthand skills and she need a good command of English grammar and spelling. I think flexibility is very important. Every organization runs an office differently--they set up their letters in a certain way and keep their files using a certain system. A secretary should be willing to adjust and learn new ways of doing things. Being considerate of others is also important.

Just simple courtesy and consideration can go a long way in creating a pleasant atmosphere in an office.

N: How would you sum up the strengths and weaknesses of your job as a secretary?

S: Sometimes I get tired of just sitting in one place all day long and wish I had a more active job. And there aren't many chances for promotions to other types of jobs. But I enjoy working in an office. The physical surroundings are pleasant. I enjoy working with people and learning new things, and I like having a variety of duties. And probably most important, I feel that my boss depends on me to carry out my responsibilities, and I get a feeling of personal satisfaction when I do a good job.

N: Well, thank you very much for telling us about your job.

S: You're welcome. I hope it was helpful to you.

EXPLORING GOALS
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STUDENT GUIDE Sr. 207(74)
XI-1

BUSINESS CLERICAL OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Business-Clerical Occupations group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit, you should be able to:

1. Recognize that the following jobs are included in the group of Business Clerical Occupations: typist, stenographer, secretary and file clerk.
2. Compare the work activities of typists, stenographers, secretaries and file clerks.
3. Describe the employment opportunities for clerical workers.
4. Describe the amount and type of education usually required for typists, stenographers and secretaries.
5. Identify the basic skills that typists, stenographers and secretaries use in their work.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

1. What is the title of a clerical worker whose main work task is to take dictation and use a typewriter to transcribe notes?

   a. Stenographer

   b. Secretary

   c. File clerk

   d. Typist

STUDENT DIRECTIONS:

____1. Read the section on "Stenography, Typing, Filing and Related Occupations", p. 217-221 in Occupations and Careers.

____2. Listen to the tape "Occupation: Secretary." Follow along in the tapescript provided in the student information booklet, "Business Clerical Occupations".

____3. Optional: Visit an office and see what typists, stenographers, secretaries, and file clerks do on their jobs; or interview a clerical worker about her job.

____4. In the space provided below, make a list of the work activities specific to each of the following occupations: typists, stenographers, secretaries, and file clerks.

Typist ____

____

Stenographer ____

____

Secretary ____

____

File clerk ____

____

____5. You have just learned about what secretaries do. To practice some of their on-the-job activities, use the Job Experience Kit "Secretary." Read the booklet in the kit and follow the directions in it. Keep your completed answer sheet with this Student Guide.

____6. Read about clerical occupations from pp. 214-217 and the first paragraph in the second column on p. 220 of Occupations and Careers.

____7. Look through the want ads in a local newspaper and find ads for clerical workers. Write a paragraph summarizing the information you found in the want ads. Include:

(a) the types of clerical jobs available in your area;
(b) the common requirements for these jobs, and
(c) the beginning pay offered for these jobs.

____

____

____

____

____

____

____

____

____8. In a sentence or two in the space below, compare the opportunities for clerical workers in your neighborhood as you found them in the newspaper, with the nationwide employment opportunities described in Occupations and Careers.

____

____

____

____9. Read the paragraph on p. 56 which begins "Business education. . ." in Occupations and Careers.

___10. Make a list of the courses offered at your high school which teach skills that would be useful in clerical occupations. If possible, compare your list with the list make by another student.

___11. You have just learned about the occupations of typist, stenographer, secretary and file clerk. Remember that these occupations are examples of some of the occupations included in LRG XI: BUSINESS, SECRETARIAL-CLERICAL.

___12. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it and discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to either one of the following tapes and answer the following questions in regards to the specific tape.

VG732 "Switchboard Operator"
VG736 "Secretary"

(1) What are the duties of this worker in this occupation?

(2) What are the preparation requirements?

Schooling -
Training -
Cost -

(3) What are the earnings of the occupation?

Beginning -
Peak -

(4) What personal or physical characteristics are required for this occupation?

(5) What are the usual working conditions?

Hours --
Days --
Vacation --

TEST

BUSINESS CLERICAL OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. What is the title of a clerical worker whose main task is to index and store materials so that they can be found quickly?

   a. Typist

   b. Stenographer

   c. Secretary

   d. File clerk

2. Which of the following titles belongs to a clerical worker who takes dictation, types, files letters, answers the phone, and handles other office details?

   a. Typist

   b. Stenographer

   c. Secretary

   d. File clerk

3. Of the following statements, which best describes the major work activities of a stenographer?

   a. Types letters and other documents from rough drafts

   b. Takes dictation and uses a typewriter to transcribe notes

   c. Handles a variety of business details, including taking dictation and typing letters

   d. Organizes and maintains a filing system

4. Which of these statements best describes the difference between a secretary and a typist?

   a. A typist can usually type faster than a secretary.

   b. A typist types a variety of documents, while a secretary types only letters.

   c. Both typists and secretaries type, but secretaries have other duties also.

   d. Secretaries work in general business offices, while typists specialize in a field such as medicine or insurance.

5. The number of job openings for clerical workers in the United States is expected to

   a. increase.

   b. remain about the same.

   c. decrease slightly.

   d. decrease

6. Which of the following sentences best describes employment opportunities for clerical workers?

   a. A few openings will occur as present workers die, retire or leave their jobs for other reasons.

   b. There will be many job openings for clerical workers in private and public organizations.

   c. Employment opportunities for clerical workers will be found mainly in government departments.

   d. Employment opportunities for men will be good in clerical work, but women will have a hard time finding a job.

7. Which of the following high school courses would probably be most helpful for a student who is planning to go into secretarial work?

   a. English

   b. Math

   c. Science

   d. Foreign Language

8. Most clerical jobs require that applicants have at least

   a. two years of high school.

   b. graduation from high school.

   c. two years of college.

   d. graduation from college.

9. To qualify for most beginning jobs, a typist should be able to type at least

   a. 20-30 words per minute.

   b. 40-50 words per minute.

   c. 60-70 words per minute.

   d. 80-90 words per minute.

10. Which of the following occupations is included in the family of Business Clerical Occupations?

    a. Newspaper reporter

    b. Stenographer

    c. Economist

    d. Draftsman

11. Of the following occupations, which is included in the family of Business Clerical Occupations?

    a. Typist

    b. Appliance serviceman

    c. Dental hygienist

    d. Accountant

12. Which of the following occupations is included in the family of Business Clerical Occupations?

    a. Business manager

    b. Insurance agent

    c. Librarian

    d. File clerk

EXPLORING GOALS
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STUDENT INFORMATION SHEET

Sr.207(74)
XI-2

BUSINESS CLERICAL OCCUPATIONS

Part 1

Some of you may already have had some experience with simple bookkeeping tasks. If you have ever been the treasurer for a club, you probably had some system to keep a record of the income and expenses of the club and the amount of money on hand. Below is a sample of a page from a ledger that might be used for the financial records of a club. Several items have been posted on the form.

Date		Description of Item	Debit	Cridit	Balance
4	1	Balance	2 1 65		2 1 65
4	10	Refreshments for Sp. D		7 52	1 4 13
4	10	Decorations for Sp.D		5 83	8 30
4	13	Ticket sales for Sp.D	3 4 50		4 2 80

Pretend you are the treasurer of a club and use the ledger form in your Student Guide to keep the financial records for the club. Make up a name for your club and post the five items listed below under "Items to be entered:". Follow these instructions when you post the items.

1. For each item, enter the date of the transaction and a short description of the item.
2. For items that increase the value of the club treasury, enter the amount in the Debit column. Add this amount to the balance on the line above and enter this sum as the current balance in the Balance column.
3. For items that decrease the value of the treasury, enter the amount in the Credit column. Add this amount to the balance on the line above and enter this sum as the current balance.
4. Check your work by adding up the amounts in the Debit column and adding up the amounts in the Credit column.

Subtract the sum of the Credit column from the sum of the Debit column. The difference should be equal to the current balance.

5. Use the sample form as a model as you post the items. When you have finished, compare your form with the completed form on the Answer Sheet included in this student information booklet.

Items to be entered:

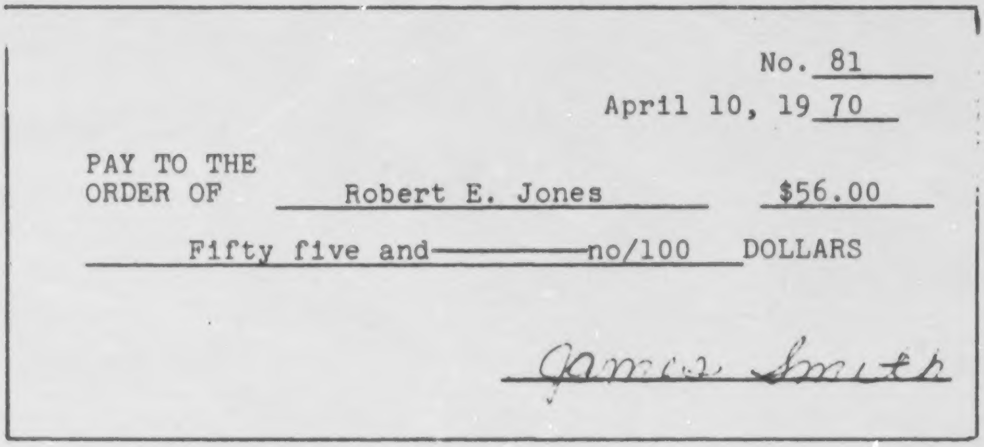
1. Balance of $13.85, entered on October 1
2. Dues of $1.50 collected at the October 1 meeting
3. Dues of $2.75 collected at the October 8 meeting
4. Refreshments for the October 8 meeting, cost $1.96
5. Cost of $3.64, supplies for the car wash, paid on October 20
6. Income of $15.00 from the car wash collected on October 21

Part 2

People deposit money in a bank and then they can pay for things with checks instead of cash. A check is a request for the bank to take money out of your account and pay it to the person you name. A common work task of a bank teller is to accept money or checks for deposit in checking or savings accounts. The checks must be correctly filled out and endorsed, which means that the person to whom the check is made out signs the check on the back exactly as it is written on the front. This gives the bank proof that the person has received the money.

Pretend you are a bank teller at First City National Bank in the following situation. A customer comes to your window and gives you the check illustrated below for deposit. See if you notice any errors in the check. Write down the things you think are wrong with the check on your Student Guide. Then check with the Answer Sheet to see if there are any errors.

Front of the Check



No. 81

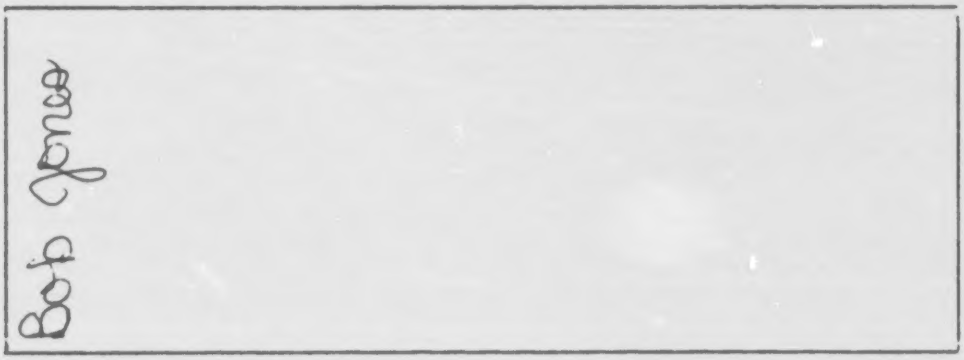
April 10, 1970

PAY TO THE ORDER OF Robert E. Jones $56.00

Fifty five and——————no/100 DOLLARS

James Smith

Back of the Check



Bob Jones

Tape Script

OCCUPATION: COMPUTER OPERATOR

N: Narrator
C: Computer Operator

N: Could you start by telling us about what kind of work a computer operator does and what the computer you operate is used for?

C: The computer operator actually runs the computer. First he reads over the program which the computer programmer prepared. The program consists of instructions which tell the computer what to do. Then the operator checks the equipment, makes sure the computer is loaded with the tape or cards it needs, and starts the run. During the run, he watches the computer and tries to correct any errors that occur. The computer in my office is rented out to other companies that want to use a computer but do not have one of their own. Our computer is used mainly for such things as billing customers, figuring out payrolls, keeping inventories, and the processing of other records.

N: How did you get interested in becoming a computer operator?

C: Well, I've always liked to work with machines. I was a helicopter mechanic in the service, but I didn't want to make a career of that. I became interested in computers about six years ago through a friend who was taking night school courses in computer science at a junior college.

I took one course in data-processing equipment. There I learned to use several of the machines that are used to prepare information so it can be processed by the computer, such as the keypunch machine, the sorter, and the collator. I also learned to use a small first-generation computer that did a few simple operations such as subtracting and dividing and then bringing out the results. That was one of the first models of computers that was developed. After that, more complicated, second-generation computers were developed, and now we are using newer third-generation computers. Then I took another course. This one was an introduction to computer programming. We learned a computer language and practiced writing out step-by-step instructions for the computer to follow in solving simple problems. But it didn't interest me very much. I liked working with machines more and didn't get very involved in the programming class.

N: How did you get your first job working with computers?

C: I saw an advertisement in the paper where they needed a "bright, young, alert" man to start as a data clerk. I went to the agency, filled out the application, and they sent me to the State University to interview for the job. The job didn't pay much and it wasn't very difficult; but as it worked out, it was a great opportunity for me because the University was willing to train me. I started out as a data clerk, and basically what I did was take printout from the computer which showed the results of the runs, match the computer printout with the cards that were turned in, and answer some of the questions of the people who were using the computer center. Actually, I was just a messenger boy, but soon I got a chance to learn how to use some of the equipment and machines. I caught on quickly. Some people just freeze whenever they have to do anything with a machine; but I found once you learned some common instructions, you could operate almost any computer. There was a fairly high turnover of operators, and I soon started to operate a 1401. I loaded cards in, took cards, matched them, and broke them down into decks, and printed tapes. Then I began to operate a 7090, a second-generation computer that they were using at the time. It took more planning to run the 7090, but my supervisor was helpful in explaining what to do and why. About this time, IBM announced its 360 series of computers, and I spent a week at an IBM class for computer operators to learn how to use the new machine. No one really knew much about operating the new computer so we had to use a lot of common sense in dealing with the problems that came up. Gradually, I learned what the compilers, assemblers, and other parts of the computer were for.

N: There seem to be many specialized words associated with computers. Did you have difficulty learning the vocabulary?

C: They may sound strange when you first hear them, but after awhile you learn what they mean. As an operator, you also learn a lot about programming. You have to learn enough so that you can understand when the programmer explains to you what he wants, and so you can explain to the programmer what went wrong when his program "bombs"--that is, when it won't run for some reason.

N: What kind of jobs can you advance to after becoming a computer operator?

C: Well, I was promoted to lead operator. I supervised a crew consisting of a junior operator, assistant operator, and data clerk. As a lead operator, I had to make a lot of decisions. I had to decide whether to run a program even though it might cause the machine to die.

N: What do you mean by "causing the machine to die?"

C: To die means to come to a complete stop. Often you can tell the machine is going to die, and you just have to watch it because you can't stop it. In my next promotion, I became a trouble shooter; that is, I would try to identify and correct any problems we were having with the computer. If the computer died, or was down, I would call the computer company and ask them to send a repairman. Then I would gather as much information about the difficulty as possible. If you say the machine is dead, that really doesn't say much. However, if you say that while the machine was going down, one particular disk pack was racing back and forth and you could hear a high screech, well, that tells you something about what the machine was doing at that time. It is easier to find and correct the difficulty.

N: What causes a machine to go down?

C: The range is vast! A computer is a complicated machine and many things can go wrong. Sometimes it's operator error. You forget to load something or to turn a switch. Sometimes it is done by the programmer by asking for a device that the machine doesn't have or asking the computer to write on a particular location where it can't write. At other times, it dies because of something the machine does. For instance, the other day we were sitting here and all of a sudden smoke started coming out of one of the components. One wire got a little warm and caught on fire. That's why we keep the temperature in the room with the computer controlled at all times. An alert operator can do a lot to prevent things from going wrong, but sometimes the computer dies for reasons you have no control over.

N: It sounds as though you advanced rapidly at the University. Why did you change jobs?

C: Yes, I did advance rapidly, but I had little chance for any further promotions. The job I now have is assistant operations manager. I'm paid more here and have more responsibility. I maintain supplies, supervise the operations and scheduling, operate the machine when people are sick, train new employees, and do some programming. Now that I've done some programming I enjoy it and would like to go into programming full time. Programmers are very well paid and I could make more money that way. With my present experience, I should be able to get a position as a computer programmer.

N: Did you have any trouble learning to use a new computer when you changed jobs?

C: Well, each location is different with its own particular system. But that doesn't mean that if you are trained in one location you can't operate somewhere else. There are certain basic commands that are pretty standard.

N: Can you give me some examples of commands?

C: Typical commands are "Stop," "Start," "Display," "Ignore," "Cancel." You type these commands on the keyboard of the computer. Often the computer gives you messages such as "Intervention Required" or "Volume Label Not Found" and you reply to the computer with further instructions.

N: What are some of the special aspects of your job that people should know about?

C: A computer operator often works under pressure. The programmers are often under pressure to complete a program by a certain date, and they often put pressure on the operator. For example, you may be running a job that takes three hours and after two and one-half hours, the machine dies and you've lost everything. All of a sudden you're two and one-half hours behind, and the programmers pressure you to run their job first. If you've contributed to the error, this adds to the pressure. So you have to be able to stay cool under pressure and deal with people with tact and patience. It is very important that you are able to cooperate with the other members of the crew. Even though an operator spends a lot of time with machines, he does deal with people a good amount of the time too, and has to be able to get along with others.

N: How should a young person prepare for the job of computer operator?

C: Computer operation is becoming increasingly specialized and employers prefer someone with some college background. A two-year junior college background in computer science would be very helpful. There is a growing need for operators who are able to program.

I would also say that experience with computers is very valuable and a person should be willing to start out at a low salary to gain experience. Here we are open 24 hours a day. We have three shifts--from 8 to 5, from 5 to 12, and from 12 at night to 8 in the morning. Often it is easier to get a beginning job on a night shift. There is not so much pressure on the night shifts and the operator would probably have a better chance to learn.

N: Thank you very much. Your answers have been very informative.

Answers

Part 1

Date		Description of Item	Debit	Credit	Balance
10	1	Balance	13 85		13 85
10	1	Dues	1 50		15 35
10	8	Dues	2 75		18 10
10	20	Supplies for Car W.		3 64	14 46
10	21	Money for Car wash	15 00		29 46

Part 2

Errors on the check:

1. The two amounts on the check are different. In the upper right hand blank $56.00 is written in numerals, but $55.00 is written out in words.
2. The check is not endorsed correctly. The name on the back should be exactly the same as on the front--Robert E. Jones.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE

Sr. 207(74)
XI-2

BUSINESS CLERICAL OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Business Clerical Occupations group of Vocational Long-Range Goals

THE GOAL:

At the end of this unit, you should be able to::

1. Recognize that the following occupations are included in the group of Business Clerical occupations: bookeeper, bank teller, keypunch operator, and computer operator.
2. Describe the typical work activities of a bookkeeper.
3. Describe the typical work activities of a bank teller.
4. Describe the employment opportunities for office machine operators.
5. Identify the educational requirements for bookkeepers and for office machine operators.
6. Describe the main work activities of a computer operator.

THE EVALUATION:

At the end of this unit, you should be able to answer questions such as the following:

1. How much education is usually required to become a bookkeeper?
    - a. two years of high school
    - b. high school diploma
    - c. two years of junior college
    - d. four year college degree

STUDENT DIRECTIONS:

_____1. Read the section on bookkeepers on pp. 221 and 222 of *Occupations and Careers.*

_____2. Read Part 1 of the student information booklet, "Business and Clerical Occupations." Do the activities on the form below.

Name of Club:

Date		Description of Item	Debit	Credit	Balance

_____3. Read the section on bank tellers from the end of p. 223 through the top of p. 224 in Occupations and Careers.

_____4. Read Part 2 of the student information booklet, "Business Clerical Occupation." In the space below list the errors you found on the check. Check your answers with the answers provided in the learner information booklet.

Errors on the check: ______________________________

____

____

____

_____5. Optional: Visit a local bank and list some of the work activities that you see bank tellers doing. If one of the tellers does not seem to be busy, ask him or her to talk with you about his main work activities.

_____6. In the space below, list the main work activities of a bank teller. Check your answers with pp. 223 and 224 in Occupations and Careers.

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_____7. Read the section on "Office-machine operators" on pp. 224-226 of Occupations and Careers.

☐ 8. Arrange to see the filmstrip and listen to the records, "Preparing for the Jobs of the '70's." Watch Part 1 through the section showing a keypunch operator and a computer operator.

_____9. Review the descriptions of the console operator on p. 226 of Occupations and Careers.

_____10. Listen to the tape, "Occupation: Computer Operator." Follow along in the tapescript provided in the student information booklet, "Business Clerical Occupations."

_____11. Optional: If there is a course in data processing offered at your school, arrange to meet with the teacher and ask him to describe the skills that students learn in the data-processing class and to discuss with you the employment opportunities in data-processing.

____12. You have just learned about the occupations of bookkeeper, bank teller, keypunch operator, and computer operator. Remember that these occupations are examples of some of the occupations included in LRG XI: BUSINESS, SECRETATIAL-CLERICAL.

____13. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

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XI-2

TEST

BUSINESS CLERICAL OCCUPATIONS

Record the answers for this test on a separate sheet of paper. Have the instructor check your answers when you finish.

1. Which of these high school courses would be most helpful for someone interested in becoming a bookkeeper?
    a. Advanced Algebra
    b. World History
    c. Chemistry
    d. Business Arithmetic
2. How much education is usually required to be hired as a bookkeeper?
    a. Two years of high school with at least one high school business course
    b. A high school diploma and one or two high school business courses
    c. Two years of junior college with a major in business
    d. Four year college degree with a major in mathematics
3. Which of these is a common work task of a bookkeeper?
    a. Organizing a collection of books
    b. Storing books for distribution
    c. Analyzing the financial records of a business
    d. Recording financial transactions in ledgers

4. For which of these activities would you deal with a bank teller?
   a. To finance a mortgage on your house
   b. To open a checking account
   c. To cash a personal check
   d. To take out a business loan

5. Which of these tasks is a common work activity of a bank teller?
   a. Sending out monthly statements to customers
   b. Accepting deposits and giving out money withdrawn by customers
   [illegible] Interviewing people applying for loans
   d. Deciding on the interest rates for savings accounts

6. At their jobs, bank tellers
   a. have a great deal of contact with customers.
   b. have very few contacts with customers.
   c. deal mainly over the phone with people.
   d. deal mainly with other bank employees.

7. The minimum education usually required for office-machine operators is
   a. two years of high school.
   b. a high school diploma.
   c. two years of college.
   d. a four year college degree.

8. The number of office-machine operators needed is expected to:
   a. increase because of the increasing amount of paper work.
   b. decrease because machines can now do the work so quickly.
   c. remain about the same for the next ten years.

9. The employment opportunities for office-machine operators are
   a. Good
   b. Fair
   c. Poor
   d. Very poor

10. Which of the following tasks is typically performed by a computer operator?
   a. Design of new types of computers
   b. Installation and maintenance of computers
   c. Correction of errors that are made while the computer is operating
   d. Repair of computers that have stopped working

11. A computer operator typically
   a. analyzes problems to be done by the computer.
   b. writes detailed instructions for the computer.
   c. punches information on computer cards.
   d. loads the computer with cards and tapes.

12. Which of these occupations is included in the group of Business Clerical Occupations?
   a. Computer salesman
   b. Computer serviceman
   c. Computer programmer
   d. Keypunch operator

13. Which of these occupations is included in the group of Business Clerical Occupations?
   a. Accountant
   b. Actuary
   c. Bookkeeper
   d. Statistician

14. Which of these occupations is included in the group of Business Clerical Occupations?
   a. Bank manager
   b. Bank teller
   c. Loan officer
   d. Retail salesman

EXPLORING GOALS
MINI ~ PAC

STUDENT INFORMATION SHEET

Sr.207(74)
XII-1

PUBLIC AND COMMERCIAL SERVICE OCCUPATIONS

Part 1

Work Activities of a Fireman:

1. Fights fires in forests, buildings, and automobiles;
2. Takes care of fire fighting equipment;
3. Inspects buildings to be sure they are not a fire hazard;

4. Gives out information to people on how to prevent fires and what to do if a fire starts;

5. Does a certain job most of the time such as connecting hoses to fire hydrants, or driving the fire truck;

6. Gives first aid to people who have been injured.

Part 2

Work Activities of a Policeman:

1. Keeps law and order by
    a. Patrolling to be sure no one is breaking the law;
    b. directing traffic.
2. Tries to solve crimes
    a. Checks scene of crime for clues
    b. Tracks down people who seem guilty because of evidence he has; takes them to a hearing before a judge

Part 3

Drivers transport thousands of products and millions of people every day.

Here is a description of five of the major types of drivers.

1. Over-the-road drivers are the experienced professional drivers who drive long distances, such as from the manufacturer to the store where the products will be sold. They operate the largest trucks, receive the highest wages, and have a lot of responsibility. These drivers deliver food, clothes, machinery, furniture, and other types of products.

2. Over half the drivers are local truck drivers who work for businesses, trucking firms, or themselves. Local truck drivers deliver such things as food to grocery stores, goods to department stores, and building materials to construction locations. They usually work a regular daytime schedule and do not drive long distances between cities as the over-the-road drivers do. Their duties vary, but much of their time is spent loading and unloading goods and making pickups and deliveries.
3. Routemen are salesmen as well as drivers. They drive trucks over a route, selling and delivering goods. The milkman, breadman, and dry cleaner delivery man are routemen. They have frequent contact with customers and work regular hours.
4. Bus drivers make up another group of drivers. Local bus drivers follow bus routes through suburbs and cities to take people to and from work, schools, and homes. Other bus drivers travel long distances and carry passengers between cities.
5. Many taxi drivers are also needed to pick up people and deliver them to their destinations, expecially in large cities. They drive people to and from airports, train stations, hotels, entertainment events, and homes. Taxi drivers often work in the evenings, on Sundays, and on holidays in order to be on call when people want their services.

Part 4

How to Describe the Employment Opportunities for a Job

A good description of the employment opportunities for a job should include the number of openings the job is expected to have in the future. Occupations that are expected to have a steady or increasing number of job openings provide fair to excellent employment opportunitees. Occupations that are expected to have a decreasing number of job openings provide poor employment opportunities. Some occupations, such as computer programmer, have a growing number of job openings, thus providing good employment opportunities. Other occupations, such as ship loader, have a decreasing number of job openings since machines can now do much of the work of loading ships.

If possible, a description of employment opportunities should consider the number of workers seeking availible jobs. For example, there is an increasing number of job openings for advertising workers, but many workers are seeking jobs in this field, and it is often difficult to find a job. Entertainers, such as singers and actors, also face stiff competition for available jobs.

Often the employment opportunities for an occupation should include information on the expected number of job openings in the future. If possible, it should also include information on the number of workers seeking these jobs and where the jobs are located.

Part 5

General laborers work in occupations that often involve heavy physical work such as loading and unloading, digging, hauling, wood chopping, and mixing concrete. They often work in factories, on construction jobs, and in transportation jobs. Often these jobs pay well, but there is sometimes a high possibility of injury on the job. Because there are many workers in this occupational group, there are many job openings each year. However, many general laborers are not able to find steady work because when jobs are scarce, general laborers often are the first to lose their jobs. Recently there has been a decrease in the number of general laborers as new equipment takes over their jobs. Machines such as forklift trucks, cranes, and digging equipment now do much of the work that used to be done by general laborers. More and more of the work now done by general laborers is expected to be done by machinery in the 1970's.

TAPE SCRIPT

OCCUPATION: FIREMAN

N = Narrator
F = Fireman

N: The following tape is based on an interview with Mr. McDonald, who has been a fireman for 15 years in a city and is now a battalion chief in his fire department. What he says about his hours, his daily work activities, and other aspects of his job will not necessarily be the same in other fire departments across the country, but it is typical for many fire departments.

N: Mr. McDonald, could you tell us about the main duties of a fireman?

F: The fire service has two main jobs -- one is to put out fires and the other is to prevent fires from starting. The overall purpose of fire fighting is to prevent fires, protect life and property, and put out fires when they do start. At this station, our main job is to put out fires, but we also are involved in fire prevention. We have men at the fire station at all times prepared to answer any alarms and handle any emergency.

N: What hours do you work?

F: We come to the fire station at eight in the morning and work a full 24-hour cycle until eight the next morning. Then we have 24 hours off. This is the most common work schedule for fire departments, but it does vary. In some places there is a 10-hour day shift and a 14-hour night shift. The number of hours firemen work each week varies too. The work week in large cities tends to be shorter than in small towns.

N: How do you like working those hours?

F: The majority of men like the system although some don't. I can say as an individual that I prefer 24-hour shifts. My wife has adjusted to it. But I've done it for 15 years now -- if she hasn't now, she never will! (Chuckle)

N: What is a typical day like for a fireman?

F: When we come in to work in the morning, we check all the equipment to see that everything is in good working order. Upon completion of that we do the routine housework. This is just the same as what anyone would do in his home, such as sweeping and cleaning and just generally cleaning up the fire station. Then we have a coffee break and from 10:30 to noon we have a drill period. Every day we review some kind of drill. Sometimes it's classroom work and sometimes we actually take the trucks out and lay hose lines, raise ladders, put on masks, or do some other drill that is useful in fighting fires. It takes an organized effort to control a fire, and every man must be able to perform his specific assignment. Part of our job is to help injured people, so we also review first aid frequently.

N: What kind of places do you inspect?

F: We try to inspect all places of business at least four times a year. Now this varies and you have to use your judgement. In places where a lot of people gather in one building, such as a movie theater, we inspect more often. We check the fire exits and look for possible fire hazards. Sometimes we inspect homes, too. There is a strong trend for firemen to get more involved in the prevention of fire hazards. We hand out information to people on how to prevent fires and what to do if a fire starts.

N: What would happen if there was a fire alarm while you were inspecting a building?

F: Someone stays with the truck with a radio so they can be notified if there is an alarm. The men in the building have a portable radio with them and they can be called in case of an alarm also. So even while inspecting, we can respond to an alarm with little delay.

Then after three in the afternoon, after we've completed our inspections, we come back to the station and make reports on the inspection. Dinner is from five to six. Sometimes there are projects in the evening, but otherwise a man's time is his own to spend as he wants.

That's another thing about this job. Since we work here 24 hours a day, everyone takes a turn cooking, until you're a chief officer. Actually the men are pretty good cooks, but sometimes you'll hear guys say, "Oh, I hate to cook."

N: About how many alarms do you usually have a day?

F: In this city we run about a thousand a year -- or about three a day on the average. But of course some areas have more alarms and other stations will have fewer alarms a year. In large cities with heavy industrial areas, you would probably have more alarms, while areas with just family housing would probably have fewer.

N: Do you have many big fires?

F: Most of the alarms are for small fires. Only a small percentage are for very large fires -- such as an entire house or a big building. And some of the alarms are rescue alarms, and we go out with our first aid equipment.

The last big fire in this area was last month when there was a fire on the seventh floor of the Tourist Hotel. It was not a large-loss fire but it was very complicated. A building with many stories changes your firefighting problems considerably.

N: What are the special problems with high-rise buildings?

F: Well, when the fire is on the seventh floor, it is no longer possible to fight the fire from the outside by squirting water on it. You have to take the hoses up elevators and fight the fire from inside. In this fire, the elevator wouldn't work because some of the electrical wires had melted in the elevator and we had to take the hoses up the stairs.

The advantage of the new many-storied buildings is that they are well constructed and fire resistant. If you have a building with cement roof and cement floors, it is obvious that the fire is going to have a hard time going from one floor to the other. This type of building stops the spread of fire much more than most single-family houses. But a many-storied building poses the problem of smoke more than the spread of fire. The smoke can't go anyplace and gets caught between floors. Breathing equipment in the upper floors is always our biggest problem. We need a lot of breathing equipment in high buildings.

N: The job of a fireman sounds like a dangerous one.

F: Yes, there are dangers to being a fireman. Up until now it was the most hazardous occupation based on the number of deaths per thousand employees. But many fire stations are now more advanced with better equipment, and it is not the hazardous occupation that it was years ago.

N: Could you tell us about the requirements to become a fireman and about the job opportunities for a young man interested in the job?

F: The common requirements include being at least 21, being a high school graduate, and having a certain height and weight. There is also usually a written exam and a physical test. There are many openings in fire departments each year for young men who meet the requirements.

N: What is the physical test like?

F: It's been changing lately. We used to have a test which included running over an obstacle course and doing things like push-ups. But the new type of testing is done with modern equipment. For instance, there is one machine you breathe into that measures your lung capacity; we have machines you grip to measure strength and machines where you pull on a chain to test your lifting ability. We do have men do push-ups and chin-ups, too.

N: What kind of training do you give new recruits?

F: The new fireman learns the ways to fight fires, how to prevent fires, how to use fire-fighting equipment such as axes and ladders. At our station, the beginner is given a special assignment each month during the first year. At the end of the first year he takes a final examination. A few don't pass the test, but usually if a man isn't going to make it, he knows before this time.

N: What's the pay like for firemen?

F: The money is good pay for the hours, type of work, and education required. I'm sure you'd never get rich on a fireman's salary, but it's adequate.

N: Is there a certain age when you have to retire?

F: Yes, we retire at the age of 55, and I think that's fairly typical in most parts of the country.

N: Are there many chances for promotions?

F: It depends. In areas where the population is growing and the fire department is expanding, you would expect to have more opportunities for promotions. There might be fewer promotions in a department that has a stable size, and where promotions depend on retirements and men leaving. I feel fortunate in that I have had opportunities for promotions and have had a new challenge with each new position.

N: Well, thank you for your time, Mr. McDonald . . . . . (Then you hear an alarm ringing and a voice over a loud speaker muffled in the background.)

F: I'll have to leave now -- an alarm . . . . .

TAPE SCRIPT

OCCUPATION: POLICEMAN

N: Narrator
P: Policeman

N: The following tape is based on an interview with a policeman who has been on the force for almost 10 years. He explains his job and tells how the work of a policeman is changing.

N: Could you tell us about the work of a policeman?

P: The main duties of the police are to preserve the peace, to protect life and property, and to enforce the laws of the land. In areas where there are mainly stores and companies, our big concern is with the protection of property and we check buildings for security. In areas where there are homes, we want to make people secure in their own homes as well as to check on businesses. The department in our city provides services beyond fighting crime and stopping criminals. We try to listen to people's complaints and to make the community a more pleasant place to live.

N: What is a typical day like for a patrolman?

P: It starts out with a briefing. The sergeant reads the daily bulletin which includes any activities that the police department has had in the preceding 24 hours and other announcements. Then someone who has been off work for 16 hours or 1 day can come back to work and find out what has been happening. With more information, he is better able to perform his job.

Then the patrolman gathers up the materials he needs and checks out a car or motorcycle. He makes sure that he is equipped with a first-aid kit, a clean blanket, a shotgun, and shotgun shells, and that the radio, lights, and other equipment in the car are working. Then he starts out on his beat.

N: What is a "beat"?

P: A city is divided into areas, or beats, which patrolmen are assigned to cover. One beat might be a business district; another might be mainly homes; ond one might be a high crime area. In our department, a patrolman is assigned a beat to cover for a certain period of time and then is shifted to another beat. In this way a police officer works on all the beats and is familiar with all the different areas of the city. Different things tend to happen in different beats. The job is also different on each shift, so we rotate shifts. We have four main shifts: 3 in the afternoon to 11 at night, 9 at night to 5 in the morning, 11 at night to 7 in the morning, and 7 in the morning to 3 in the afternoon. Then we have some other shifts that overlap such as traffic shifts that are at all kinds of hours. But a police officer will eventually work all the beats and all the shifts to become familiar with the city and to know what's happening.

N: What kinds of things would be a policeman encounter?

P: O.K. Let's take a shift from 3 in the afternoon to 11 at night. First you would go out and travel through the entire beat and see what people are out, who is working, and what is going on. You would get a general overview of the beat. Then, since schools would be letting out a little after 3, you might check the schools and see that the children are getting home all right. You might look for out-of-place people hanging around the schools who might be potential school burglars. You might be stopped by someone who wants directions or who wants to complain about something. As you patrol your beat, you would look for traffic congestion, signs that are down, or hazardous conditions on the road. You would watch for such things as an abandoned house with broken windows where children playing might get hurt. You would perform a variety of tasks and have a variety of contacts with people in their day-to-day activities.

N: But the patrolman is in radio contact with the police department while he covers his beat, isn't he?

P: Oh, yes. These are his tasks assuming he has no radio assignments, which often isn't the case. There are radio details such as picking up an abandoned bike which some person had noticed in front of his house, or taking a report of a theft from a woman who had her wallet taken out of her purse while she was shopping, or checking up on a murder. Every law that is in the book is a potential detail for the officer. The policeman has to make up his mind in a split second sometimes as to what to do. If a policeman sees something occurring on his beat (and not just on his beat -- at any time), he has to make a decision right then and there whether a law seems to have been broken and whether he should take any action. He has to decide who he should arrest and actually arrest him. As all these thoughts go through his mind, he has to evaluate all the evidence he has -- what he's seeing, what he's hearing, and what he finds. He has to look at the situation and the evidence he has and make a decision. If he recognizes a crime he has to gather the necessary evidence and necessary statements from witnesses, suspects, and victims.

N: Can a policeman specialize in one kind of police work?

P: Yes. In many small towns, one policeman handles many kinds of duties, but in large cities, police often specialize. For instance, in our department we have men who specialize in detective work and investigating such crimes as burglaries; men in field identification who search for evidence such as fingerprints, tool prints, and tire marks and who take photographs; and other men who specialize in areas such as traffic control, juvenile work, and motorcycle patrol.

N: Have there been many changes in the duties of a policeman?

P: Well, police departments have traditionally been slow to change, but our police department has changed a lot over the last 10 years. First of all, our police department has become more aware of the value of education and it is encouraging continuing education for police officers. In addition, the educational qualifications for police officers have increased and we prefer men with some college background.

N: What kinds of courses are helpful for police work?

P: Well, taking a course won't guarantee that you'll be a good policeman. But the more education a person has, the more likely it is that he'll perform properly in a situation. Many colleges offer courses in police science that teach the technical aspects of our job. In addition, courses that deal with people, such as sociology and psychology, provide good background for police work. As a policeman, you work with people more than you work with lifting fingerprints and recovering stolen cars. Right now I'm taking a course called "Youth Work with Groups" which is a police course where we learn to work with youth and to interact with them better on a personal level.

N: How else is police work changing?

P: Our work has been made easier by technological advances. We've now got things like computerized record checks where we can find out various forms of information within 10 seconds, while without a computer it would have taken 45 minutes to an hour and a half. But we still have a need for better equipment.

Probably the biggest change in our department, though, has been the change in the relationship of policemen to the community. Rather than just riding around in their cars, separated from the community, we want our officers to interact more with people and become involved in other ways than enforcing laws. Some of the ways we become involved are through Little League baseball, recreation department activities, the scouting program, and by visiting schools. Of course, police must still perform their three main duties --to preserve the peace, to protect life and property, and to enforce the laws-- but the other duties of a policeman are changing. People want to be treated like people, and we are trying to have more contacts with people--not just when we stop someone for speeding.

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE SR. 207(74)
XII-1

PUBLIC AND COMMERCIAL SERVICE OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the Public and Commercial Service group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Describe the main work activities of a fireman.
2. Describe the main work activities of a policeman.
3. Describe the duties of these five major types of drivers: over-the-road drivers, local truck drivers, routemen, bus drivers, and taxi drivers.
4. Describe the employment opportunities for general laborers.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

1. Which of the following statements describes a main work activity of a policeman?
   a. punishes criminals
   b. decides which laws to enforce
   c. preserves the peace
   d. writes new laws

STUDENT DIRECTIONS:

____1. Listen to the tape "Occupation: Fireman." Follow along in the tape script attached to the student information sheet, "Public and Commercial Service Occupations."

____2. Optional: Arrange to visit your local fire station. Make a list of at least five things you want to learn about the job of a fireman. Find out these things when you visit the fire station.

____3. In the space provided write a brief description of the main work activities of a fireman. Check your description with the list of fireman's work activities found in Part 1 of the student information sheet, "Public and Commercial Service Occupations."

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____4. Listen to the tape "Occupation: Policeman." Follow along in the tape script attached to the student information sheet, "Public and Commercial Service Occupations."

____5. To practice some of the on-the-job activities of a policeman, use the Job Experience Kit "Police Officer." Read the booklet and follow the directions in it. Keep your completed answer sheet with this Student Guide.

____6. Optional: Arrange to have a policeman speak to your class or arrange to visit your local police station. Make a list of at least five things you want to learn about the job of a policeman, and find out the answers to these questions when you talk with the policeman.

____7. In the space below, write a description of the main work activities of a policeman. Check your description with the list in Part 2 of the student information sheet, "Public and Commercial Service Occupations."

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____8. Read Part 3 of the student information sheet, "Public and Commercial Service Occupations."

____9. Fill in the boxes in the chart on the following page using information from your reading. You may go back and reread Part 3 if you wish

	Area Traveled	What Carried	Motor Vehicle Operated	Duties Performed
Over-the-road Drivers				
Local Truck Drivers				
Routemen				
Bus Drivers				
Taxi Drivers				

___10. You have learned about what truch drivers do. To practice some of their on-the-job activities, use the Job Experience Kit "Truck Driver." Read the booklet and follow the directions in it. Keep your completed answer sheet with this Student Guide.

___11. Read Part 4 of the student information sheet, "Public and Commercial Service Occupations to find out what kinds of information should be included in a description of the employment opportunities for any occupation.

___12. Read about general laborers in Part 5 of the student information sheet, "Public and Commercial Services Occupations."

___13. In the space below, write a description of the employment opportunities for general laborers. Use the information you learned in reading Parts 4 and 5 of "Public and Commercial Service Occupations" to help you.

___14. When you have completed all of the activities in this Student Guide you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to any one of the following tapes listed below and answer the questions in regards to the specific tape.

VG724 -- "Policeman"
VG737 -- "Local Truck Driver"
VG748 -- "Laundry Routeman"

1. What are the job requirements?

   Schooling--

   Training--

2. What are the usual working conditions?

   Hours--

   Days--

   Vacation--

3. What are the earnings?

   Beginning--

   Peak--

4. Is the occupation growing or declining?

TEST

PUBLIC AND COMMERCIAL SERVICE OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. Which of the following is a task most firemen would do as part of their job?
   a. Drive around most of the day looking for fires
   b. Develop fire resistant building materials
   c. Install fire hydrants
   d. Inspect buildings for fire hazards
2. Which of the following is an activity most firemen would do on the job?
   a. Provide complete and extensive medical care for injured persons
   b. Drive an injured person to a hospital in an ambulance
   c. Give emergency first aid to injured persons
   d. Report to the scene of all automobile accidents
3. A typical task of most firemen is
   a. the repair of property damaged by fires.
   b. the repair of dangerous electrical wiring which could cause a fire.
   c. watching for forest fires from a high tower.
   d. giving out information on how to prevent a fire.

4. One of the main duties of a policeman is

   a. writing laws that are fair.

   b. suggesting new laws.

   c. enforcing present laws.

   d. deciding what punishment a law breaker should receive.

5. Police officers who patrol a beat usually spend most of their time

   a. solving murder and burglary cases.

   b. presenting evidence in court to show that a person is guilty of a crime.

   c. working at a desk in the police station.

   d. checking his beat to see that no one is breaking the law.

6. Which of the following describes the job of a routeman?

   a. Drives large trucks over long distances

   b. Drives trucks and delivers goods at large stores

   c. Drives along routes and delivers people to and from places

   d. Drives a small truck and sells or delivers goods to customers

7. Which of the following describes the job of a local truck driver?

   a. Delivers loads of goods to large stores

   b. Delivers goods such as milk or bread to houses

   c. Drives along local routes and picks up and delivers passengers

   d. Picks up passengers and takes them wherever they want to go

8. Which of the following jobs would probably be done by an over-the-road driver?

   a. Delivering dry cleaning to homes

   b. Delivering food to a grocery store

   c. Driving between cities, carrying passengers

   d. Driving between cities, carrying a load of furniture

9. During the 1970's the number of job openings for general laborers is expected to

   a. decrease slightly

   b. stay the same

   c. increase

   d. increase rapidly

10. Which of the following describes the job future for general laborers?

   a. Good, because of the increasing number of jobs for general laborers

   b. Good, because few people are qualified to work as general laborers

   c. Poor, because machines can now do much of the work once done by general laborers

   d. Poor for the next few years, then expected to improve

EXPLORING GOALS
MINI ~ PAC

STUDENT GUIDE

Sr. 207(74)
XII-2

PUBLIC AND COMMERCIAL SERVICE OCCUPATIONS

THE POINT:

The purpose of this unit is to help you to:

Learn about what you would be doing if you prepared for and entered several of the occupations included in the General, Commerical and Public Service group of Vocational Long-Range Goals.

THE GOAL:

At the end of this unit you should be able to:

1. Recognize that the following occupations are included in the group of Public and Commercial Service Occupations: cosmetologist, practical nurse, cook, waiter, and waitress.
2. List two common ways to prepare for the occupations of cosmetologist.
3. Compare the length of training required and the average salary for a licensed practical nurse with the length of training required and the average salary for a professional nurse.
4. Describe the employment opportunities for cooks and chefs.
5. Describe the work activities of a waiter or waitress.

THE EVALUATION:

At the end of this unit you should be able to answer questions such as the following:

1. Employment opportunities for cooks and chefs are:

   a. Excellent -- demand for their services is rising.

   b. Average -- no great increase in demand is expected.

   c. Poor -- job openings occur only when other chefs retire or change jobs.

   d. Very Poor -- many chefs are being replaced by machines.

STUDENT DIRECTIONS

_____1. Read pp. 262-264 on "Cosmetologists" in Occupations and Careers.

_____2. Optional: Find out the name of a school in your town which offers training in cosmetology. You can locate the name in the yellow pages of the phone book. Call or visit the school and find out what kind of training programs are available, how long they take, how much they cost, and when classes are offered.

_____3. In the available spaces, list two common ways that people may prepare for the occupation of cosmetologist. Check your answers on page 263 of the reading.

11. Which of the following occupations is included in the group of Public and Commercial Service occupations?
    a. Anthropologist
    b. Cosmetologist
    c. Chiropractor
    d. Home economist

TEST

PUBLIC AND COMMERCIAL SERVICE OCCUPATIONS

Record the answers for this test on a separate sheet of paper.

Have the instructor check your answers when you finish.

1. The usual duties of a cosmetologist include
   a. providing services related to hair care.
   b. selling cosmetics and perfume.
   c. operating a reducing gymnasium.
   d. providing services related to diagnosing skin problems.

2. Cosmetologists usually learn the skills necessary to pass their licensing examination:
   a. at home.
   b. in a school or as an apprentice.
   c. in another state under an exchange agreement.
   d. in night classes.

3. The length of time required for training as a practical nurse is usually
   a. one year.
   b. two years.
   c. three years.
   d. four years.

4. Compared to a professional nurse, a practical nurse has
   a. more technical training.
   b. about the same amount of technical training.
   c. less technical training.

5. Compared to a professional nurse, a practical nurse receives
   a. a higher salary.
   b. about the same salary.
   c. a lower salary.

6. The number of job openings for cooks and chefs is
   a. decreasing, because of the increasing number of vending machines.
   b. decreasing, because people are eating at home more often.
   c. remaining about the same.
   d. increasing, because more people are eating away from home.

7. In the future, there will probably be more employment opportunities for cooks in
   a. private homes.
   b. elegant restaurants.
   c. railroad dining cars.
   d. hospitals and other institutions.

8. In addition to other duties, waiters or waitresses in most large restaurants must
   a. cook a variety of foods.
   b. order the food needed for each day's menu.
   c. perform simple arithmetic problems.
   d. wash the dishes used in the restaurant.

9. Of the following, it is most important that a waiter or waitress
   a. be a high school graduate.
   b. be in good physical health.
   c. be able to work 12 hours a day.
   d. be over 35 years of age.

10. Which of the following occupations is included in the group of Public and Commercial Service Occupations?
   a. Practical nurse
   b. Professional nurse
   c. Dental hygienist
   d. X-ray technician

1. ____

2. ____

_____4 You have just learned about what cosmetologists do and how they may acquire training for their occupation. To practice some of their on-the-job activities, use the Job Experience Kit,"Beautician." Read the booklet in the kit and follow the directions that it gives. Keep your completed answer sheet with this Student Guide.

_____5. Read the section on "Licensed Practical Nurses" on page 155 of Occupations and Careers.

_____6. Look at the chart on p. 158 of Occupations and Careers and compare the occupation of licensed practical nurse with the occupation of professional nurse with respect to: (1) education required, and (2) average weekly earnings. Using the information from the chart, fill in the blanks below.

		Professional Nurse	Licensed Practical Nurse
Years of Education Required:			
	High School	________	________
	Post High School	________	________
		or	
		________	
		or	
		________	
Average Weekly Earnings:		________	________

_____7. Read the section on "Cooks and Chefs", pp. 252-254 in Occupations and Careers.

_____8. In the spaces below list five types of places where cooks work.

a. ____

b. ____

c. ____

d. ____

e. ____

_____9. Optional: Visit the kitchen of your school cafeteria, of a restaurant, or of some other place where a cook is employed. Ask the cook to tell you about his main work activities and the skills they require.

____10. Write a sentence or two in the space below describing the employment opportunities for cooks and chefs. Check your answer on page 254 of the reading.

____11. Read the section on "Waiters and Waitresses" on pp. 254 and 255 of Occupations and Careers.

____12. Optional: Visit an eating place where waiters or waitresses work. Watch what they do and make a list of the different activities they perform.

____13. You have just learned about the occupations of cosmetologist, practical nurse, cook, waiter, and waitress. Remember that these occupations are included in LRG XII, GENERAL COMMERCIAL SERVICE AND PUBLIC SERVICE OCCUPATIONS.

____14. When you have completed all the activities in this Student Guide, you will be ready for the test that goes with this unit. If there is something that you do not understand, reread it or discuss it with your instructor. When you are ready, ask for a copy of the test.

ENRICHMENT:

Listen to anyone of the following tapes listed below and answer the questions in regards to the specific tape.

VG707 -- "Cosmetologist"
VG719 -- "Practical Nurse"
VG731 -- "Stewardess"

1. What are the duties required in this occupation?

2. Is the occupation growing or declining?

3. What are the earnings?
   Beginning?
   Peak?

4. What personal or physical characteristics are required for this occupation?

5. What are the usual working conditions?
   Hours?
   Days?
   Vacation?